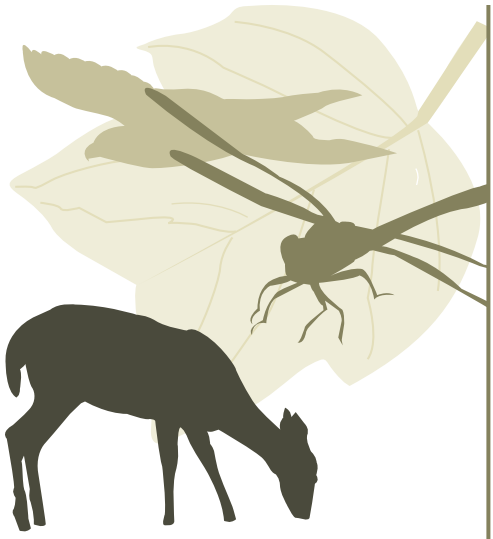


3 Affected Environment

Rare habitats including cliff and rimrock habitats.

A large mosaic of habitat provides refuge for rare species, such as the peregrine falcon.

New River Gorge National River lies at the core of a globally significant forest, contains the most diverse flora of any river gorge in central and southern Appalachia, and provides essential habitat for endangered mammals and rare birds and amphibians.

Opposite side: An unfragmented globally rare forest encompassing varied forest types.

3.0 Affected Environment

3.1 Introduction

3.1.1 Park Setting

Congress established New River Gorge National River in 1978 (Public Law 95-625) as a unit of the national park system. The park is located in southern West Virginia, including land within Summers, Raleigh, and Fayette Counties. The park's authorized boundary encompasses 72,186 acres within a 53-mile corridor along the New River that extends from the city of Hinton on the south to the upstream limit of Hawks Nest State Park on the north. NPS owns 52,960 acres within the park boundary, including land acquired from willing sellers and from the state of West Virginia. NPS has also secured conservation easements on 164 acres within the park boundary. Approximately 4,608 acres within the boundary are owned by the other public agencies, the largest tract encompassing 3,637 acres within Babcock State Park.

New River Gorge National River
Park Purpose

The purposes of New River Gorge National River are to:

- Preserve an important free-flowing segment of the New River
- Preserve, protect, and conserve outstanding resources and values in and around the New River Gorge, including geologic and hydrologic features, terrestrial and aquatic ecosystems, historic and archeological resources, cultural heritage, and scenic character
- Provide opportunities for public understanding, appreciation, and enjoyment of the park's natural, cultural, scenic, and recreational resources and values

3.1.2 Park Significance

New River Gorge National River possesses many resources and values that are important within a global, national, regional, and systemwide context and that are important enough to warrant national park designation. The significance of the park's resources and values is summarized in the following statements (NPS 2009):

- Flowing water is the definitive creative force of the New River Gorge. The New River, one of the oldest rivers in the world, continues to sculpt the longest and deepest river gorge in the Appalachian Mountains.
- The waters of the New River system contain a mosaic of hydrologic features and aquatic habitats, support a unique aquatic ecosystem, and nourish a riparian zone that supports rare plants, animals, and communities
- New River Gorge National River lies at the core of a globally significant forest, contains the most diverse flora of any river gorge in central and southern Appalachia, and provides essential habitat for endangered mammals and rare birds and amphibians.
- New River Gorge National River contains a large, outstanding, and representative group of historic places that testify to the experiences of those diverse people who settled and developed this part of Appalachia between the 19th and mid-20th centuries.
- Broad views of unbroken forest, steep gorge walls, and a river both tranquil and turbulent are punctuated by pastoral landscapes and industrial ruins to produce dramatic and extraordinary views from the river, along trails and rural roads, and from rocky overlooks.
- New River Gorge National River provides visitors with exceptional opportunities for exploration, adventure, and discovery and to experience solitude and a sense of community.

New River Gorge National River
Impact Topics Retained for Further Analysis

Topics

- Physiography, Geology and Soils
- Floodplains
- Water Quality
- Vegetation
- Aquatic Wildlife
- Terrestrial Wildlife
- Rare, Threatened, and Endangered Species
- Scenic Resources
- Archeological Resources
- Cultural Landscapes
- Historic Structures
- Ethnographic Resources
- Regional and Local Economy
- Communities
- Visitor Use and Visitor Experience
- Park Access
- Park Operations

The following sections of the GMP/EIS describe most of the fundamental and other important resources and values in the park that are critical to maintaining the park's significance as expressed in the above statements. Included in the discussion are

those resource and values that are impact topics retained for further analysis in this Draft GMP/EIS (see Section 1.10 above). (Also included in the following sections of the GMP/EIS are descriptions of existing conditions for impact topics that are not directly related to park resources or values (see Section 1.10 above).

New River Gorge National River
Park Significance Statement 1

Flowing water is the definitive creative force of the New River Gorge. The New River, one of the oldest rivers in the world, continues to sculpt the longest and deepest river gorge in the Appalachian Mountains.

Fundamental Resources and Values

- Geologic processes and the features they have created that exemplify the geology of the Appalachian Plateau, including sandstone and shale exposures over 1000 meters high (representing more than 100 million years of geologic time), house-sized boulders scattered from rim to river, plant and invertebrate fossils, steep channel drop-offs, and coal seams composed of some of the best bituminous coal in the world

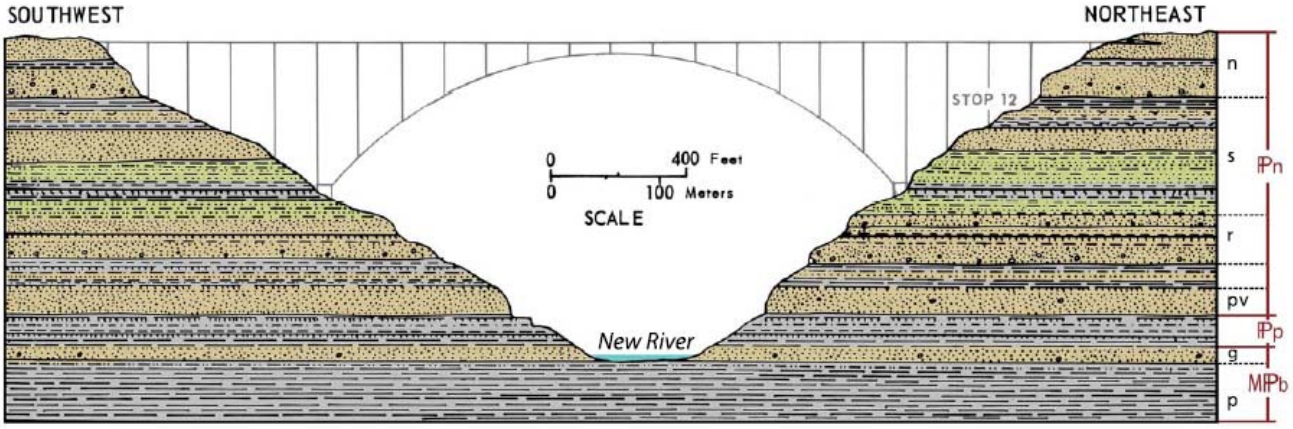
3.2 Natural Resources

3.2.1 Physiography, Geology, and Soils

New River Gorge National River is located in the Kanawha section of the Appalachian Highlands. The Appalachian Highlands are characterized by relatively flat lying rock formations with deeply incised streams in gorges and narrow valleys.

- **New River Gorge**

New River Gorge is the most prominent physiographic feature at New River Gorge National River. The gorge is formed by the New River as it cuts through the Appalachian Plateau from the city of Hinton to Hawks Nest State Park. As an erosional feature the gorge is important from geologic, historic, and natural perspectives. Size and topographic relief of the gorge make it an outstanding, nationally significant natural phenomenon (Lessing 1986). Cutting 66 miles through the Appalachian Plateau, the new River Gorge exposes 3,280 feet of rock representing 60 million years of near continuous geologic history from the mid-Mississippian (~340 million years before present (MYBP)) through upper Pennsylvanian (~280 MYBP).



Cross section of New River Formation (PP) at New River Bridge. **n**: Nuttall Sandstone Member; **s**: Sewell coal bed; **r**: Raleigh Sandstone Member; **pv**: Pineville Sandstone Member; PPp: Pocahontas Formation; MPPb: Bluestone Formation; **g**: Glady Fork Sandstone Member; **p**: Pride Shale Member.

FIGURE 3.1
NEW RIVER GORGE GEOLOGIC CROSS-SECTION

■ Age of the River

According to geological records, the New River was the main headwater's branch of an ancient watercourse called the Teays River. The Teays River flowed west to an immense inland sea that covered the central part of North America during the Mesozoic Era. Because the New River existed before the Appalachian Mountains, it was able to cut into them as fast as they were uplifted, thus maintaining its ancient course (Grafton et al. 1980). The New River is the only river that cuts through the Appalachian Mountains instead of draining from or around them (Mott 1995).

Geologic interpretations of rocks within the gorge and geological phenomenon associated with the gorge indicate that the New River could be as young as three million years old or as old as 320 million years (Lessing 1986). The youngest rocks in the gorge were deposited at or near sea level 320 million years ago. However, if erosion rates are used to date the gorge, then its age is between two to three million years old (Lessing 1986). If the New River is 320 million years old it would be the second oldest river in the world, second only to the Nile in Egypt or to the Finke in Australia. Despite questions regarding the age of the New River, it is probably one of the oldest rivers in the Appalachians (Grafton et al. 1980).

■ Geologic Formations

The gorge cuts through several geologic formations, composed predominantly of sandstones and shales of the Pennsylvania Period and the Mississippian (see Figure 3.1).

Pennsylvanian Period. The Pennsylvanian Formation is composed of the New River Formation and the Lower Pennsylvanian Formation. Three of the 13 members of the New River Formation are named sandstone outcrops – the Nuttall, Raleigh, and Pineville – that are composed of quartz cemented sandstones or quartzose sandstone. These sandstones are extremely resistant to weathering and erosion. They form the nearly vertical rock walls found in the lower portion of New River Gorge. These cliffs are most pronounced in the Nuttall Sandstone, which is an uncommon sandstone type that is 98 percent quartz (Schwietering 1984).

Mississippian Period. The Mississippian Formation rocks form the rolling hills and less steeply sloping gorge walls of the southern end of the park. In general these rocks are not well studied because of their lack of coal seams. They are mostly composed of highly erodible shales of the Bluestone, Princeton, Hinton, and Bluefield Formations. The Hinton Formation is the oldest exposed formation within the boundary of the park.

■ Outstanding Geologic Features

Cliffs. Several other unique geologic features occur within New River Gorge National River (see Figure 3.2). The Nuttall Sandstone creates a prominent cliff

feature in the northern reaches of the gorge on river right.[1] A large, nearly continuous outcrop called "Endless Wall" is about 11 miles in length and contains over 1,000 named climbing routes offering recreational opportunities to climbers due to its tough lithology and southerly exposure. The Nuttall Sandstone also outcrops on river left forming discontinuous cliffs. Other cliff features include cliffs in the middle gorge derived from the Raleigh Sandstone and some discontinuous cliffs along Meadow Creak derived from the Pineville Sandstone.

Rock Cities. Rock cities are rock talus accumulations that form when large sandstone blocks cleave away from their parent formation – generally the Nuttall and the Raleigh Sandstones – and then transport slowly down to the river. Rock cities are found at several locations within New River Gorge as well as along the cliff outcrop at Beauty Mountain.

Large Boulders. There are 72 house-size boulders (basal area equal to or greater than 2,000 square feet) found in the New River, principally between Thurmond and Fayette Station as well as at Turkey Spur. Similar to rock cities, these boulders are derived from Nuttall Sandstone. After breaking away from the cliff face they move over time to the river, providing the hydraulic shaping for many New River's rapids.

Rock Overhangs. Rock overhangs are found throughout New River Gorge, particularly under thicker sandstone members in the northern part of the park.

Spheroidal Weathering. Spheroidal weathering of the soft shales of the Bluestone Formation display the unique power that surface water runoff has in weathering rock.

- **Paleontological Resources**

Some shale members of the Hinton and Bluestone Formations – including the Pride, Eads Mill, and the File Mile members – frequently contain plant, vertebrate, and invertebrate fossils. An important plant fossil – a seed fern (*Mariopteris muricata)* – is present in the gorge that indicates the separation between two geologic ages within the Pennsylvanian period (Grafton et al. 1980). Because of the good preservation of this fossil the gorge is an excellent resource for geologic/paleo environmental studies.

- **Coal Resources and Coal Mining**

In the process of forming the gorge, the New River sliced into and through coal-bearing Carboniferous period sediments, some of the thickest through which any river flows. The configuration of the gorge permitted these coal seams to be exposed. This exposure not only alerted people to the presence of coal in the area, but also permitted its relatively easy removal and led to the industrialization of the area. Coal extracted from the gorge is bituminous and low in sulfur content,

[1] *River right is on the viewer's right when looking downstream; river left is on the viewer's left when looking downstream.*

KEY

GEOLOGIC FEATURES

- New River Gorge (depth from the river to the nearest high point)
- Cliff Feature - Nuttall Sandstone Outcrop
- Cliff Feature - Pineville Sandstone Outcrop
- "Rock City" Feature (rock talus accumulations)
- House-size Boulders (footprint > 2,000 sq.ft.) (rocks fractured from upper rock layers)

MINED COAL FEATURES

- Mined Coal- Fire Creek Coal (strip mine & underground mine areas)
- Mined Coal - Sewell Coal (strip mine & underground mine areas)
- Mined Coal - Pocohontas Coal (strip mine & underground mine areas)
- Abandoned Mine Lands
- Coal Outcrop - Fire Creek Coal
- Coal Outcrop - Sewell Coal
- Coal Outcrop - Pocohontas #6 Coal

BECKLEY
PINEY VIEW
MOUNT HOPE
STANAFORD
OAK HILL
FAYETTE COUNTY
FAYETTEVILLE
ANSTED
HINTON
MEADOW BRIDGE
SUMMERS COUNTY

Turkey Spur Rock City
Grandview Rock City
Nuttallburg Rock City
Beauty Mountain Rock City

1360′ 1320′ 1240′ 1320′ 1160′ 1400′ 1480′ 1440′ 1600′ 1400′ 1760′ 1800′ 1720′ 1720′ 1600′ 1880′ 1960′ 1360′ 1200′ 1480′ 1240′ 1200′ 1160′ 1040′ 1040′ 1120′

Figure 3.2

GEOLOGIC FEATURES AND MINED COAL AREAS

New River Gorge National River

WEST VIRGINIA

National Park Service US Department of the Interior

N

0 mi. 1.5 mi. 3 mi. 6 mi. 9 mi. 12 mi. 15 mi.

making it easily converted to coke. Because of the low sulfur content of the coal, acid mine drainage is not a serious problem in the gorge (Grafton et al. 1980; Mott 1995). One seam of coal found in the area – Sewell – is of global significance because of its low sulfur content, few metal impurities, and high heat value.

Today there are 115 abandoned coal mines in the park, most of which are unreclaimed (Yuill 1988). There is currently no active mining in the park. Of the NPS owned lands within the legislative boundary of the park, mineral rights for coal are predominately owned by the NPS "in fee simple" meaning that the minerals (including coal) are in ownership by the federal government. On lands owned by the NPS where mineral rights have not been secured, surface mining would be precluded by the parks authorizing legislation. The authorizing legislation at 16 USC 460mm–19 Sec. 1105. (a) states, "Notwithstanding any other provisions of law, no surface mining of any kind shall be permitted on federally-owned lands within the boundary of the national river where the subsurface estate is not federally owned…."

Additionally, on all other lands within the park boundary (including privately-owned lands) all persons who conduct mineral development within parks will do so only in conformance with applicable statutes, regulations, and NPS policies. These statutes include the Mining in the Parks Act, the Minerals Leasing Act, the Acquired Lands Mineral Leasing Act, the Surface Mining Control and Reclamation Act of 1977, the National Park System General Authorities Act, and enabling statutes for individual parks. Applicable regulations include 36 CFR Part 9, Subpart A and Subpart B; 43 CFR Parts 3100-3500; and special use regulations. A substantial element of these statutes, regulations, and policies is that they are written to ensure that any of the operations associated with minerals extraction within a park would not adversely impact public health and safety, environmental or scenic values, or natural and cultural resources. Surface mining activities would in all likelihood fail to meet these strict protections and therefore not be permitted.

- **Oil and Gas Resources**

In 2006 there were ten active natural gas wells listed with the WV DEP Office of Oil and Gas within the park (Clare 2006). All wells produced gas from shallow Mississippian plays (<2000 ft depth) in the Twenty Mille Creek East Gas Field located beneath the upper gorge at the north end of the park. The U.S. Geological Survey has predicted that there are 32 billion cubic feet of natural gas located in the deeper plays beneath the New River Gorge. These plays are unexplored but would likely be situated along the Mann Mountain Anticline which has its southern terminus in the Highland Mountain area. Currently gas producers in the region have no plans to develop new wells in the park and speculation is that unless natural gas prices go up significantly the deeper plays needed for new wells in the park would be uneconomical (Clare 2006).

Currently there is no known oil production in the vicinity of the park (Clare 2006). However the park is in the vicinity of the geologic formation known as the Marcellus Shale. Oil and gas industry interest is increasing as this geologic formation becomes better understood. Drilling of the Marcellus Shale creates potential impacts, especially concerning the use of water and chemicals needed to facilitate horizontal drilling. While other formations may not be feasible to drill, the viability of Marcellus Shale wells is not yet known (NPS 2008e).

- **Soils**

Silt loam soils underlie most of the park (see Appendix F, Table F.1) (USDA 1975 and 1984). They generally fall into three broad categories defined by where the soils occur on the landscape and the parent material from which they are derived:

- Calvin, Gilpin, and Dekalb soils derived from sandstone, shale, and siltstone generally occur on ridgetops and side slopes. These soils are very stony, shallow (1½ - 3' deep), and well drained with moderately high runoff potential; erosion potential is high due to steep slopes despite moderately low natural soil erodibility.

- Ernest and Meckesville soils derived from colluvium generally occur at foot slopes, along the New River (downstream of Quinnimont), and along tributary streams. These soils are very stony, deep, and poorly drained with moderately low to moderately high runoff potential; erosion potential is very high due to the combination of steep slopes and high soil erodibility.

  Kanawha, Ashton, Chagrin soils derived from alluvium, and alluvial land and gravelly alluvial land, generally occur along the New River in the floodplain and on low terraces above the floodplain. These soils are deep and well drained with moderately low runoff potential; erosion potential is moderately low.

Soil limitations for developed uses are generally severe to moderately severe throughout the park due to one or more of the following characteristics: steep slopes, shallow depth to bedrock, stoniness, flood hazard, and wetness.

- **Geology and Soils Related Management Concerns**

Abandoned Mine Lands. Environmental problems associated with abandoned mine lands include: unstable highwalls producing rock fall, unstable piles of mine waste and mine benches eroding contaminants, and acid mine drainage directly from portals and from large pile of mine waste. Some mine benches have culverts in established drainages that tend to obstruct the natural flow of rainwater surge events. When obstructed flows then flow over mine benches and strip benches they erode the surface and scour new drainage features.

Visitor problems associated with abandoned mine lands include: unstable buildings and structures, unguarded access to underground mine works, and unstable highwalls.

Landslide and Slumping Hazards. Disturbances resulting from human activities have historically contributed to landslides. Many historic and recent landslides in the lower gorge are found below an outpouring of water from abandoned deep mines and are also associated with spoil and refuse piles from strip and deep mining (Remo 1999). Many small slides in the park have occurred along roads where construction has required cutting into steep slopes, creating unstable slopes and exposing loose soil and rock to runoff.

3.2.2 The New River and Its Floodplains

■ Overview of the New River and its Tributaries in the Park

Originating near Blowing Rock in the Blue Ridge Mountains of North Carolina, the New River flows northward for approximately 250 miles through North Carolina, western Virginia, and south-central West Virginia to Gauley Bridge where it joins the Gauley River to form the Kanawha River (Figure 3.3). The Kanawha River flows through Charleston and eventually drains into the Ohio River, a tributary to the Mississippi River. The New River watershed encompasses approximately 5,274 square miles, including 756 square miles in North Carolina, 3,044 square miles in Virginia, and 1,474 square miles in West Virginia. The two major tributaries to the New River – the Greenbrier and the Bluestone – flow into the New River above Hinton, West Virginia, a few miles upstream of the park.

The New River channel today follows the ancient Teays River which dates to the beginning of the Pennsylvanian period and originally flowed north through Ohio and up into the northern end of the modern Mississippi River basin. About 10,000 years ago the last advance of glacial ice buried most of the Teays River and diverted water to the New into the Ohio and Kanawha rivers that were created by glacial action.

New River Gorge National River encompasses approximately 53 miles of the New River from the city of Hinton to Hawks Nest State Park near the town of Ansted. The 53-mile reach is composed of three subreaches of similar slope, geometry, and roughness (Wiley 1989) (see Table 3.1). Approximately 106 perennial and intermittent streams flow into the river within the park (Wilson et al. 2003). Major tributaries include Glade Creek, Piney Creek, Dunloup Creek, Wolf Creek, Laurel Creek (near Sandstone), Lick Creek, Meadow Creek, Laurel Creek (near Quinnimont), Manns Creek, and Mill Creek (see Figures 3.4 and 3.5).

The New River within New River Gorge NR is preserved as a free-flowing stream between two impoundments – Bluestone Lake upstream and Hawks Nest Lake downstream. Flow is regulated by Bluestone Dam, built in the late 1940s and

New River Gorge National River
Park Significance Statement 2

The waters of this free flowing segment of the New River system contain a mosaic of hydrologic features and aquatic habitats, support a unique aquatic ecosystem, and nourish a riparian zone that supports rare plants, animals, and communities.

Fundamental Resources and Values

- a variety and density of riverine hydrologic features and processes unparalleled in the Eastern United States, including pools, backwaters, glides, runs, shoals, riffles, torrents, cascades, chutes, rapids, and waterfalls
- a highly productive aquatic ecosystem that includes distinct assemblages of native fish (many found nowhere else), mussels, crayfish, macroinvertebrates, and a broad array of other aquatic life, including rare amphibians, reptiles, birds, and mammals
- the riparian zone is the most biologically diverse part of the park, and contains globally rare communities and essential habitat for several rare species

Other Important Resources and Values

- other aquatic/wetland resources, including vernal pools, wetlands, ephemeral streams, and seeps that provide habitat for rare species
- clean water that supports healthy aquatic and riparian environments

TABLE 3.1 New River Subreach Characteristics

Characteristic or Feature	Hinton to Meadow Creek Subreach	Meadow Creek to Sewell Subreach	Sewell to Fayette Subreach
Average length	13 miles	32 miles	8 miles
Average width	850 feet	550 feet	350 feet
Floodplain	one floodplain on one bank (approx. 1,500 feet wide)	no distinct floodplain	no floodplain (the streambanks are the valley walls)
Average depth (for a discharge of 2,000 ft^3/s)	5 feet	8 feet	12 feet
Average river bed slope	1.5 feet per 1,000 feet	1.5 feet per 1,000 feet	4 feet per 1,000 feet
Large Falls	Brooks Falls (8' to 10' drop) Sandstone Falls (25' drop)	no large falls	no large falls
Deepest pools (for a discharge of 2,000 ft^3/s)	15 to 20 feet deep (downstream of Brooks Falls and Sandstone Falls)	20 to 25 feet deep (near towns of Glade, Thurmond, and Beury)	35 to 40 feet deep (upstream from Caperton and near Nuttall Station)
Islands	three islands (0.8, 0.4, and 0.2 miles long)	one island (0.2 miles long)	no islands

Source: Wiley 1992

operated by the U.S. Army Corps of Engineers (COE) for flood control, recreation, and low flow enhancement. Bluestone Dam is generally managed on a "run-of-the-river" (outflow equals inflow) basis with minimal retention time, except when additional waters are retained to minimize flooding (Purvis et al. 2002). Mean winter flows continue to be higher than mean summer flows and there is no long-term storage of water by Claytor or Bluestone Dam (Purvis et al. 2002). On a daily basis the flows discharged through Bluestone Dam appear to correspond with the natural flow pattern. Hourly fluctuations in river flow result from the hydroelectric generation activity at the nonfederal Claytor Dam farther upstream in combination with the COE's goal to keep lake levels relatively constant recreational pool within Bluestone Lake (Mott 1995). Currently hourly releases from the Bluestone Dam are frequently timed to support commercial rafting activities.

Since construction of the dam the historic periodic flood regime on the New River has been largely eliminated. Both the magnitude and the frequency of extreme high floods have been reduced (Flug 1987). The 100-year discharge at Hinton has been lowered from 250,000 ft^3/second to 150,000 ft^3/second (Purvis et al. 1999).

Base from U.S. Geological Survey digital data, 1:2,000,000, 1992 and National Park Service digital data, 1:24,000, 1996

FIGURE 3.3
KANAWHA- NEW RIVER DRAINAGE BASIN

Table 3.2

New River Gorge National River
Streams with FEMA Flood Insurance Studies

Streams	
Summers County	▪ New River
	▪ Brooks Branch
	▪ Laurel Creek
	▪ Lick Creek
	▪ Meadow Creek
Fayette County	▪ Mill Creek
	▪ Wolf Creek
	▪ Dunloup Creek

** Source: FEMA 1980 and 1988*

■ Floodplain Studies and Mapping

Flood profiles, inundation maps, and floodway determinations are available for some of the New River and its tributaries within the park. The Federal Emergency Management Agency (FEMA) has completed flood insurance studies that provide flood profiles for the 10-, 50-, 100-, and 500-year recurrence interval floods and maps showing the floodway and areas inundated by the 100- and 500-year storms for only a few streams within the park (see Table 3.2).

The U.S. Geological Survey in cooperation with the NPS has studied the frequency and magnitude of flooding in the park on the New River and portions of Wolf Creek, Craig Branch, Manns Creek, Dunloup Creek, and Mill Creek (Wiley et al. 1994). This study revealed the following general characteristics of the river's floodplain:

- between Hinton and Meadow Creek the river has a floodplain on one bank that is approximately 1,500 feet wide
- between Meadow Creek and Sewell the river lacks a distinct floodplain
- between Sewell and Fayette there is no floodplain because the streambanks are the valley walls

Since 1994 the NPS has used the more detailed findings from this study regarding river discharges, water surface elevations, and velocities for the 2-, 25- and 100-year flood-recurrence intervals for planning and designing park facilities along the New River. No inundation map or floodway was determined.

■ Flooding Related Water Resource Management Concerns

New River Flooding. Despite general flow moderation in the New River infrequent highly localized severe flooding continues to occur on the river and its tributaries, such as in July 2001. Tributary watersheds and the river segments in their vicinity that received large amounts of rain from intense storm cells and ensuing runoff were severely impacted, while adjacent or nearby watersheds that received little rainfall were minimally affected (Purvis et al. 2006). These floods caused extensive damage to property, including cultural resources, roads and trails, buildings, and surface water quality (NPS 2001b). Debris flow caused extensive soil erosion, restructured some stream channels, and caused severe sedimentation often due to mass-movement events located below old mine sites (NPS 2001b). Newly deposited alluvial fans at the mouth of some tributaries measured 15 feet in thickness (NPS 2001b).

Discharges from Bluestone Dam. Bluestone Dam has been successful in reducing flood peaks by at least 50 percent but has had a sizable effect on other biophysical processes . Changes to flow dynamics brought about by construction of the dam have had adverse effects on the physical and biological attributes of the river (Purvis et al. 2002). For example, decreases in the extent and frequency of

KEY

- Rivers and Streams
- Rapid
- Island
- Waterfall
- Upland Wetland
- Cliff Drip
- Pool


Glade Creek at New River


New River - McCreery Pool


Dunloup Falls


Lower Coal Run Falls


Wolf Creek


Brooks Falls rapids
(Camp Brookside flatrock opposite)


Upper Marr Branch
falls and ledges

New River island and side channel


Pools at Sandstone Falls


Dowdy Creek


Keeneys Creek


Runoff in debris flow chute
Fayette Station Road


Meadow Creek: Claypool Falls


New River
side channel backwater


Flatrock community,
Sandstone Falls


Sandstone Falls


Meadow Creek
cascade step pools

Little Beaver Lake
Piney Creek
Mill Creek
Dowdy Creek
Quinnimont Rapids
Laurel Creek
Grassy Shoals Rapids
Glade Creek
Silo Rapids
Dunloup Creek
FAYETTEVILLE
Wolf Creek
Fayette Station Rapids
MillersFolly Rapids
Greyhound Rapids
Double Z Rapids
Dudleys Dip Rapids
Surprise Rapids
Lower Railroad Rapids
Keeneys Rapids
Upper Railroad Rapids
Walnut Creek
ANSTED
New River
Meadow Creek
Madam Creek
Brooks Falls
Bluestone Dam
HINTON
Greenbriar River

Figure 3.4

HYDROLOGIC FEATURES

New River Gorge National River

WEST VIRGINIA

National Park Service US Department of the Interior

N

0 mi. 1.5 mi. 3 mi. 6 mi. 9 mi. 12 mi. 15 mi.

major flooding events have altered the riparian and in-stream vegetative and geomorphological structure of the river (Purvis et al. 2002). Flow regulation tends to isolate the river from the floodplain preventing regeneration of floodplain sediments and water bodies and not allowing for resetting of succession of riparian and other floodplain vegetation (Purvis et al. 2002). Isolation of the floodplain from the river does not allow formation of new floodplain and accelerates the trend toward terrestrial conditions in existing floodplain habitats. In addition, changes in flow dynamics have affected the location and composition of gravel bars in the river (D. Chambers, USGS 2003 pers. comm.). Flood regime alteration by large dams such as Bluestone Dam also facilitates invasions by non-native organisms that might not otherwise survive extreme flows (Lytle et al. 2004). Manipulation of flood drought timing in regulated rivers can also change fish distributions by favoring species that spawn only during certain times of the year (Lytle et al. 2004).

Dunloup Creek Flooding. Flooding along Dunloup Creek has been a long-term, recurring problem causing damage to residences, small businesses, and numerous other structures. Findings of the *Dunloup Creek Final Watershed Plan* (USDA NRCS 2007) concluded that structural flood control measures such as levees and dams are not economically feasible and recommended a voluntary buy-out as the preferred action to reduce flood-related problems for threatened properties within the 100-year floodplain. Private properties within the floodplain would be acquired, restored to natural conditions (including removal of all structures), and maintained in perpetuity as natural floodplain (USDA NRCS 2007).

The park's Glen Jean Headquarters Complex is located just above the 25-year floodplain of Dunloup Creek. Estimates by the Natural Resources Conservation Service (NRCS) are that the 100-year flood would inundate the building with approximately 3 feet of water; in a 500-year flood the water level in the building would likely rise to approximately 6 feet. The federal buy-out recommended by the NRCS would not be available to NPS. If and when the headquarters is flooded and the buildings rendered unserviceable the NPS would review the options for relocating the facility.

3.2.3 Water Quality

- **New River Water Quality**

Baseline water quality data and ongoing monitoring of the New River indicate that water quality in the New River is generally satisfactory for water contact recreation such as swimming, boating, and fishing (Wilson et al. 2006) although it is adversely impacted by fecal coliform contamination, sedimentation, acidic runoff, trace metals, and trace chemical elements (Purvis et al. 2002) (see Figure 3.5). Because of occasional fecal coliform concentrations in excess of water quality standards the state of West Virginia has designated the river as impaired for its entire length in the park (WVDNR 2006). Probable human-caused sources of the contamination

include residential and municipal development, wastewater discharge, farming, livestock grazing, and recreational use.

Fecal coliform contamination is a problem in the New River at the mouths of polluted tributaries and for some distance downstream of polluted tributaries. Many of the polluted tributaries enter the New River near popular access sites for recreational activities such as whitewater boating and angling. Water quality monitoring indicates that water quality is impacted by fecal coliform contamination in these areas during periods of high turbidity, 48-hour precipitation, and high discharge events (Purvis et al. 1999; Wilson et al. 2003). Since 1990 samples taken at 11 locations along the New River have exceeded state fecal coliform standards from 0 to 13 percent of the time (see Appendix F, Table F.2) (Purvis et al. 2006).

Mine land runoff and metals contamination do not significantly affect the New River main stem because of dilution. Unlike other Appalachian areas, coal in the vicinity of the park is generally low in sulfur, and does not produce much acid mine drainage. Further, some of the extensive limestone areas traversed by the New River and its tributaries help reduce potential acid mine drainage problems, and contribute to a well-buffered ecosystem (WV DNR 1989).

- **Tributary Streams Water Quality**

Several tributaries to the New River are impaired by improper treatment and disposal of domestic sewage. This is the most pervasive water resource issue in the park (Purvis et al. 2002). Sixteen wastewater treatment plants discharge almost 9.4 million gallons of treated wastewater per day into tributaries of the New River within the park (Purvis et al. 2002). Sewer overflow systems release a combination of storm runoff and untreated sewage directly into streams during storm events (Purvis et al. 1999; Purvis et al. 2002). Hydraulic overloads and poorly designed or maintained wastewater systems also contribute sewage pollutants to tributaries. Fecal coliform bacteria contamination is found at varying levels in every tributary, with higher concentrations exceeding West Virginia water quality standards by three orders of magnitude (Mott 1995; Wilson et al. 2003). In particular, Madam, Piney, Dunloup, Arbuckle, Coal Run, Keeney, and Wolf Creeks, and Marr Brach have high levels of fecal coliform bacteria. On these tributaries fecal coliform counts exceeded the fecal coliform standard for contact recreation from 25 to 100 percent of the time from 2001 to 2003 (see Appendix F, Table F.2) (Wilson et al. 2003).

In addition, toxins and metals associated with poorly or untreated municipal outfalls, combined with cumulative impacts from other sources, are probably impacting biotic communities of the tributaries (Mott 1995).

Two pathogens often found in human and animal waste, *Giardia* and enteric viruses, were detected in a reconnaissance study of Madam and Dunloup Creeks in 2002

KEY

Watersheds and Water Quality

- NERI boundary
- Watershed Boundaries
- Rivers and Streams
- Rivers and Streams – Impaired
  (including rivers and streams that were designated impaired in 2004 by the State of West Virginia because they did not meet state water quality standards or they did not meet their designated use)

Results of Fecal Coliform Sampling by NPS 1, 2

- Watersheds where <10% of Samples had more than 200 Fecal Coliform Bacteria/100 ml H2O
- Watersheds where 10-25% of Samples had more than 200 Fecal Coliform Bacteria/100 ml H2O
- Watersheds where >25% of Samples had more than 200 Fecal Coliform Bacteria/100 ml H2O
- Watersheds Not Sampled by NPS

1 The period of record for fecal coliform sampling by NPS generally extends from 1990 to 2003.

2 The West Virginia Water Quality criterion for recreational waters is 200 fecal coliform/100 ml H_2O with no more than 10 percent of samples exceeding 400 fecal coliform/100 ml H_2O.

Piney Creek
Dunloup Creek
Arbuckle Creek
Laurel Creek (Cotton Hill)
Penfield Branch
Marr Branch
Wolf Creek
Rush Run
Coal Run
Mill Creek
Mill Creek
Dowdy Creek
Glade Creek
Fire Creek
Short Creek
Fern Creek
Slater Creek
Buffalo Creek
Keeney Creek
Ephraim Creek
Fall Branch
Farleys Creek
Camp Branch
Laurel Creek
Davis Branch
Manns Creek
Madam Creek
Kates Branch
Big Branch
Owens Branch
Meadow Creek
Tug Creek
Brooks Branch
Laurel Creek
Lick Creek

N

0 mi. 1.5 mi. 3 mi. 6 mi. 9 mi. 12 mi. 15 mi.

Figure 3.5

WATERSHEDS AND WATER QUALITY

New River Gorge National River

WEST VIRGINIA

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(Messinger 2002). Although water samples were examined for the pathogens *Cryptosporidium* and *Salmonella*, they were not detected in the park (Messinger 2002).

Some tributary streams are affected by organic industrial contaminants and acid mine drainage. Tributaries with mine runoff problems include Rush Run, Piney Creek, Meadow Creek, Wolf Creek, Arbuckle Creek, Dunloup Creek, and Peters Creek. The state of West Virginia has identified Dunloup Creek as an impaired waterway along its entire length due to aluminum contamination from an unknown source, perhaps from an abandoned mine (Mott 1995). Wolf Creek has such concentrated discharges of acidic mine waters that low pH values are a problem. On Wolf Creek, fish kills due to low pH have caused the WV DNR to discontinue trout stocking in the stream. Meadow Creek runs directly through a 400-foot thick deposit of mine waste; however the waste pile has been stabilized and reclaimed by WV DEP). Rush Run is also impaired due to abandoned mine discharge (Marshall 2001). In several other tributaries metal laden-waters and sediment from barren unreclaimed mine spoils result in reduced habitat quality.

- **Water Quality Management Concerns**

Sewage Pollution. Lack of adequate and proper treatment for domestic waste is the most pressing and pervasive water resource issue at the park. The problem is most pressing in streams tributary to the New River. Several areas near the park have relatively high concentrations of households without septic systems or sewer service. In many instances existing septic systems do not function properly. In communities with sewage treatment plants, sewer lines feeding those plants are frequently broken. Most sewage systems combine sanitary and storm runoff in one collection system; during long or intense rain events inflows frequently exceed plant design capacity causing incoming sewage to bypass the plant after receiving only chlorination before discharging into a receiving stream. These conditions cause frequent elevated fecal coliform levels in tributaries and in the New River oftentimes in excess of water quality standards for contact recreation.

Water Quality Data Collection and Management. Historically water quality monitoring has occurred on a relatively regular schedule primarily by the NPS and/or the state of West Virginia. Currently the NPS monitors fecal coliform bacteria because the state standard for water contact recreation is based on this parameter. NPS should consider analyzing more samples for *E.Coli* as scientific evidence suggests that *E.Coli* is a superior sanitary water indicator. More monitoring during high flows associated with storm events and snowmelt runoff is needed to document conditions during peak flow periods. While NPS currently observes quality assurance (QA) and quality control (QC) in its monitoring, QA/QC standards should be a more important and visible component of the program. Water quality data needs to be maintained in one database at park headquarters and also entered in the EPA's STORET database.

Agricultural and Urban Runoff. Agricultural and urban runoff is the primary source of non-point pollution in the park's streams and rivers of the parks. Much of the watershed of the park – particularly the Greenbrier River watershed – is in agricultural use. High rates of soil erosion resulting in increased loads of silts and sediments, as well as runoff of fertilizers, pesticides, and herbicides are common problems of agriculturally impacted rivers. Existing development in the park's watershed has increased the volume of urban runoff contributing sediment and pollutants washed from lawns, roads, and other impervious surfaces. As future growth occurs water quality impacts from urban runoff will likely increase, although new federal and state requirements for stormwater management will help to mitigate some impacts.

Mineral Development. Numerous active and abandoned coal mines in or near the park pose existing and potential environmental problems for park water resources. Several tributaries in the park are impacted by acidic drainage or seepage through piles of processing waste ('gob"). Seeps from improperly sealed mine shafts may have low pH (<3.0), high conductivity, and high concentrations of sulfate, iron, aluminum, manganese, and chloride. Erosion from barren strip-mined areas typically increases turbidity downstream following precipitation. Runoff from strip-mined areas that accumulates in ponds is typically acidic and contains high metal concentrations. Both new and abandoned mine roads can erode, causing landslides and high turbidity and/or high sediment loads in streams

Timber Harvesting. Statewide, timber volumes and timberland acres are at the highest levels of the past century and timber harvesting is expected to continue for many years (Purvis et al. 2002). The potential exists for increased logging activity and associated timber processing industries near the park. Unless carefully managed, timber harvest substantially alters the physical environment of streams, changes stream flow, raises stream temperature, and increases sedimentation.

Discharges from Bluestone Dam. The New River within the park is affected by operation of Bluestone and Claytor Dams. Bluestone Dam is a bottom-release facility that decreases stream temperature in the tailwaters. Reduction in water temperature and the potential to elevate dissolved oxygen downstream of the dam is the primary water quality issue related to Bluestone Dam.

Hazardous Spills and Waste Sites. Potential sources of hazardous materials and toxics in the park include accidental releases by such means as train derailments, tanker-truck highway accidents, and spraying of herbicides along railroad rights-of-way, as well as leachate and runoff from landfills and industrial sites. Trains on the CSX main line as well as trucks and other vehicles on state and federal highways routinely transport chemicals, coal, and a variety of other potentially toxic substances through the park and across the river on bridges. Numerous incidences of derailments and spills have occurred over the years most of which spilled coal,

except one which spilled sulfated mercury (Purvis et al. 2002). Leachate from the abandoned Fayette County Landfill, located at the head of Rush Run, may be leaking into ground and/or surface waters in the park (Mott 1995). Collection basins are installed around the facility to trap surface runoff, but reportedly over flow on a regular basis. The park has not received data from ground or surface water monitoring associated with the site (Mott 1995). Another 20 active or abandoned landfills exist in the area that could be draining leachate toward the park (Purvis et al. 2002). Illegal roadside dumping of trash also occurs within the park and may move down-slope to tributary drainages (Mott 1995).

3.2.4 Vegetation

■ The Park's Forest

New River Gorge National River is located within an expanse of mixed-mesophytic forest that is the largest remaining area of midatlantic forest in the world, making it a globally significant resource (Ritters et al. 2000). Within the park the continuous span of mixed-deciduous forest (composed of both oak-hickory and mixed-mesophytic forest types) is approximately 60 miles (96.6 km) long by 2 miles (3.2 km) wide, one of the largest in the nation (Ritters et al. 2000). Approximately 84 percent of the land cover is forested and 65 percent of the forestland is interior forest (Ritters et al. 2000). By comparison, only 45 percent of the forestland in West Virginia would be classified as interior forest (based on the same scale of analysis) (WV Gap Analysis Program 2003).

Significant expanses of the park's forest remain largely unfragmented by roads, trails, utility corridors, or developed land uses (see Figure 3.6). These large blocks of unfragmented forest are largely intact natural landscapes and are of high conservation priority because they contain a diversity of plant species and support a significant community of forest-interior birds. Many rare vegetation communities are included with the large unfragmented forest blocks.

■ Community Types and Associations

Forty-one forest community types are found in the park representing 39 forest associations (Vanderhorst 2007). These include:

- 16 upland forest and woodland types
- 15 riparian types (including jurisdictional wetlands along the New River and its lower tributaries
- headwater wetlands types
- one non-vascular type
- one sparse vegetation type
- 3 cultural types (kudzu patch, old field, and pine plantation)

New River Gorge National River
Park Significance Statement 3

New River Gorge National River lies at the core of a globally significant forest, contains the most diverse flora of any river gorge in central and southern Appalachia, and provides essential habitat for endangered mammals and rare birds and amphibians.

Fundamental Resources and Values

- rare expanse of unfragmented and varied forest types
- a diverse mosaic of habitats occurring over a large elevational gradient that supports forty identified plant communities containing at least 1,342 species and 54 rare plants
- abundant and diverse breeding populations of birds that spend part of their lives in the tropics but depend upon the unfragmented forests here for breeding, especially wood warblers, vireos, and thrushes

Other Important Resources and Values

- clean air

Two upland forest types are classified as distinct types within the park, but are placed in the same association. One riparian type is a "placeholder" pending further field sampling.

Upland deciduous forest is the predominant natural vegetation within the park. Three upland deciduous forest associations dominate, intergrading with one another and generally correlating with soil moisture and fertility gradients affected by topographic position, aspect, and geology (Vanderhoorst 2007). They include:

- **sugar maple–buckeye–basswood forest** occupies moist, fertile sites on concave, lower, and northerly facing colluvial gorge slopes on shale derived soils
- **oak–hickory forest** occupies drier, less fertile sites and predominates on plateaus with residual soils derived primarily from sandstone
- **oak–hickory–sugar maple forest** is intermediate and predominates on southerly facing, convex, and upper colluvial gorge slopes and on northerly aspects and on plateaus

Three additional deciduous forest associations occur less extensively in the park (Vanderhoorst 2007):

- **oak–ericad forest** is somewhat less extensive compared to the major three associations and occurs on drier, less fertile sites than the Oak – Hickory Forest
- **chinquapin oak–black maple forest** is an uncommon association restricted to areas with calcareous bedrock
- **yellow birch cold cove forest** is an uncommon association restricted to deep canyons with low solar exposure

Less abundant than deciduous forests are natural upland forests with a significant conifer component that occur in more specialized habitats (Vanderhoorst 2007):

- **cliff top Virginia pine forest** and **cliff top pitch pine woodland** on southerly slopes
- **hemlock–sweet birch–tulip poplar–giant rhododendron forest** and the related **Deciduous Tree–Giant Rhododendron Forest** are fairly abundant types which occur in moist sites (coves, ravines) with acidic, low fertility soils

Riparian areas cover a small area within the park but contribute significantly to its overall biological diversity. They are some of the most diverse, dynamic, and complex biophysical habitats in the terrestrial environment (Naiman et al. 1993). Fifteen riparian associations are classified in the park. Probable reasons for high diversity of species and communities in riparian zones include abundant seed

KEY

Extent of Unfragmented Forest

- More than 90 Percent Unfragmented Forest (within the 50-acre grid cell shown)
- 81 to 90 Percent Unfragmented Forest (within the 50-acre grid cell shown)
- 66 to 80 Percent Unfragmented Forest (within the 50-acre grid cell shown)
- Less than 65 Percent Unfragmented Forest (within the 50-acre grid cell shown)

Unfragmented forest includes land that is not fragmented by roads, trails, utility corridors, or developed land uses. It is represented by the percentage of land within 50-acre grid cells that is unfragmented by these features.

BECKLEY
PINEY VIEW
STANAFORD
MOUNT HOPE
OAK HILL
FAYETTEVILLE
ANSTED
HINTON
MEADOW BRIDGE

N

0 mi. 1.5 mi. 3 mi. 6 mi. 9 mi. 12 mi. 15 mi.

Figure 3.6

EXTENT OF UNFRAGMENTED FOREST

New River Gorge National River

WEST VIRGINIA

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sources, abundant moisture and nutrients, and strong environmental gradients created by variation in flooding intensity and periodicity as affected by elevations (Vanderhoorst 2007).

Small areas of headwater wetlands also contribute significantly to species and landscape diversity in the park.

Semi-natural vegetation has developed in mined areas and in sites cleared by humans and then abandoned. Four successional forest types and additional patches of early successional Old Field occur within these areas (Vanderhoorst 2007).

- **Successional Dynamics**

Upland Forest and Woodlands. Plant communities in the park are generally young (<75 years old), reflecting past land use disturbance and natural disturbance regimes (e.g., flooding, landslides) (Fortney et al. 1995). Almost all the park was heavily impacted by logging, mining, and other human development in the late 1800s through the 1900s. Extensive canopy disturbance resulted in an increase in cover by early successional and shade tolerant tree species. Following recovery of forest canopy cover, succession continues by the replacement of shade intolerant species with shade tolerant species. Forest soil moisture, organic matter, and fertility is generally increasing as time passes since fire or other human-caused disturbance. Seed dispersal acts as a slow agent to reintroduce shade tolerant understory plant species which were displaced by canopy removal. These processes occur at the stand level and at the landscape level.

In the absence of fire or other human-caused canopy and ground disturbance the aerial cover of the park's upland forest and woodland associations are likely to change in generally predictable ways (Vanderhoorst 2007). Areas of forest and woodland associations adapted to more xeric conditions (cliff top Virginia pine forest, cliff top pitch pine woodland, oak/ericad forest, oak-hickory forest) are likely to decrease over time. Areas of forest and woodland associations adapted to more mesic conditions (sugar maple – buckeye – basswood forest, oak – hickory – sugar maple forest, deciduous tree/giant rhododendron) are likely to increase. Boundaries between these associations are likely to move upslope. Areas of hemlock – sweet birch – tulip poplar forest/giant rhododendron forest would be expected to increase but *Tsuga canadensis* (hemlock) is currently threatened by *Adelges tsugae* (hemlock wooly adelgid), an exotic insect pest.

Riparian and Headwater Wetland Communities. Successional dynamics of riparian and headwater wetland communities in the park are quite different from those of upland communities (Vanderhoorst 2007). Riparian communities are maintained by a disturbance regime of periodic floods. Flooding can maintain open canopies by removing individual trees or large events can remove entire patches of vegetation. Especially ephemeral riparian vegetation associations include riverscour

prairie, riverscour annuals, and lizardtail backwater slough. Successional dynamics and extent of many headwater wetlands are controlled by beaver.

- **Aquatic Plants**

Diatoms are the primary type of algae found in surveyed tributaries (Rutherford 1999). Many tributaries in the park vicinity contain algal species that are indicators of salt brine, sewage, and oil (Weaks et al. 1997). The high abundance and frequency of the algae, *Schizonthrix calcicola*, indicates that human waste is a major contributor to pollution in many streams surveyed (Mahan 2004).

The dominant macrophyte in the park is water star-grass (*Heteranthera dubia*), an aquatic grass often associated with mussel beds in the New River (Buhlmann et al. 1987, Jirka et al. 1987, Buhlmann 1990). Aside from its association with mussel beds, water star-grass provides habitat for macroinvertebrates and fish in the New River. Pondweed (*Potamogeton* spp.) and Nuttall waterweed (*Elodea* spp.) are also common in the New River and are often present in mussel beds (Buhlmann et al. 1987, Jirka et al. 1987, Buhlmann 1990). The size of *Elodea* beds within the park has increased in recent years, perhaps due to increased eutrophication of the New River (Buhlmann 1990).

Poor water quality and associated eutrophication may increase the abundance of some algae and plants species in the park's streams (Mahan 2004). However, increased eutrophication also threatens to eliminate or restrict the distribution of certain aquatic plant species in the park (Weaks et al. 1997).

- **Rare or Significant Plant Communities**

Several vegetation associations in the park are likely to be globally and/or state rare (Vanderhoorst 2007). Although formal ranks have not been established for many associations, a list of those likely to be rare is provided in Table 3.3 (see Figure 3.7). Many of these communities contribute significantly to the regional biodiversity of plants and animals in the park, including the dry sandstone cliff, the cliff top-Virginia pine, and juniper-Virginia pine flatrock woodland communities.

Of the park's rare or significant vegetation communities the juniper-Virginia pine flatrock woodland (high Appalachian flatrock) community is most rare. It is a globally rare ecological community that is composed of locally rare sedges, cedars, pines, and other plants. It occurs in two locations within the park on flat sandstone ledges along the New River and is dependent on the scouring caused by occasional flooding for its long-term integrity (Buhlmann et al. 1987)

KEY

Rare Species Diversity

- 6 to 10 occurrences of rare species (within the 50-acre grid cell shown)
- 3 to 5 occurrences of rare species (within the 50-acre grid cell shown)
- 3 to 5 occurrences of rare species (within the 50-acre grid cell shown)
- No occurrences of rare species (within the 50-acre grid cell shown)

Rare species diversity is represented by the number of verified occurrences of rare species within 50-acre grid cells.

Rare species include species designated as follows:

- *designated as endangered or threatened by the federal government*
- *designated as rare by the State of West Virginia*
- *designated as declining by Partners in Flight (a consortium of public agencies and private organizations whose mission is bird conservation)*

BECKLEY
PINEY VIEW
STANAFORD
MOUNT HOPE
OAK HILL
FAYETTEVILLE
ANSTED
HINTON
MEADOW BRIDGE

Figure 3.7

RARE SPECIES DIVERSITY

New River Gorge National River

WEST VIRGINIA

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N

0 mi. 1.5 mi. 3 mi. 6 mi. 9 mi. 12 mi. 15 mi.

TABLE 3.3 Vegetation Associations Likely to be Globally and/or West Virginia State Rare

Community Name	Association	Global Rank	West Virginia Rank
Upland Forests and Woodlands			
Chinquapin Oak–Black Maple Forest	*Acer saccharum – Quercus muehlenbergii / Cercis Canadensis* Forest	G4?	SNR
Cliff Top Pitch Pine Woodland	*Pinus rigida – Quercus coccinea / Vaccinium angustifolium* Woodland	GNR	SNR
Cliff Top Virginia Pine Forest	*Pinus virginiana – Pinus (rigida, echinata) – (Quercus prinus)/ Vaccinium pallidum* Forest	G4?	SNR
Hemlock–Chestnut Oak/Catawba Rhododendron Forest	*Quercus prinus / Rhododendron catawbiense – Kalmia latifolia* Forest	G3?	SNR
Yellow Birch Cold Cove Forest	*Betula alleghaniensis – (Tsuga Canadensis) / Rhododendron maximum / Leucothoe fontanesiana* Forest	G3 G4Q	SNR
Lichen and Sparse Vegetation			
Dry Sandstone Cliff	Appalachian – Alleghenian Sandstone Dry Cliff Sparse Vegetation	GNR	SNR
Riparian Communities			
Black Willow Slackwater Woodland	*Salix nigra – Betula nigra / Schoenoplectus (pungens, tabernaemontani)* Wooded Herbaceous Vegetation	GNA	SNR
Juniper–Virginia Pine Flatrock Woodland	*Juniperas virginiana* var. *virginiana – Pinus virginiana – Quercus stellata / Amelanchier stolonifera / Danthonia spicata – Melica mutica* Woodland	G2	S1
Lizardtail Backwater Slough	*Peltandra virginica – Saururus cernuus – Carex crinita / Climacium americanum* Herbaceous Vegetation	G2?	SNR
Oak–Tulip Poplar/Silverbell Floodplain Forest	*Quercus (alba, rubra, velutina) / Halesia tetraptera* Forest	GNR	SNR
Riverscour Prairie	*Andropogon gerardii – Panicum virgatum – Baptisia australis* Herbaceous Vegetation	G2 G3	SNR
Sycamore–Ash Floodplain Forest	*Platanus occidentalis – Fraxinus pennsylvanica / Carpinus caroliniana / Verbesina alternifolia* Forest	GNR	SNR
Sycamore–River Birch Riverscour Woodland	*Platanus occidentalis – (Betula nigra, Salix* spp.) Temporarily Flooded Woodland	GNR	SNR
Headwater Wetlands			
Forest Seep	*Acer rubrum – Nyssa sylvatica / Ilex verticillata – Vaccinium fuscatum / Osmunda cinnamomea* Forest	G3 G4	SNR

G2 – Imperiled – At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
G3 – Vulnerable – At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent or widespread
G4 – Apparently secure globally – Uncommon but not rare; some cause for long-term concern due to declines or other factors.
GNA – Not applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
GNR – Global rank not yet assessed. **S1** – Critically imperiled in state – 5 or fewer occurrences. **SNR** – State rank not yet assessed.

Source: Vanderhoorst 2007

- **Vegetation Management Concerns**

Fragmenting Land Uses. Roads, railroads, logging, mining, and urban development have fragmented the continuous expanse of forest in the park. The potential threat of additional forest fragmentation associated with these land uses is greatest where land within the park's authorized boundaries remains in private ownership.

Fire Management. A comprehensive fire history for the park needs to be developed to help determine the historic role of fire in maintaining and/or creating selected vegetation communities (Mahan 2004). Forest composition research indicates that oak is not regenerating within the park (Fortney et al. 1995). Oak stands are being replaced by mixed-mesophytic species such as maple, tulip poplar, and back gum; a history of fire suppression probably has limited oak regeneration (Mahan 2004). Virginia pine and pitch pine are declining throughout their range, especially along cliffs and within the Appalachian flatrock communities within the park probably due in part to an absence of fire (Mahan 2004).

Deer Overbrowsing. In the park region the white-tailed deer herd is well above estimated pre-European settlement population levels, having increased from approximately 8 to 20 deer per square mile (Horsely et al. 2003) to 33 deer per square mile (WV DNR 2003). In general higher populations of white-tailed deer in the eastern U.S. in the late 20th and early 21st centuries have reduced plant diversity, caused forest regeneration failure, and have had secondary impacts on other wildlife communities (Horsely et al. 2003). Within the park deer herd may be partially limiting the success of oak regeneration in the park (Mahan 2004). Oak is a preferred food to deer and continued grazing by deer will contribute to the replacement of oak by species such as red maple that are less palatable to deer (Curtis et al. 2001).

Exotic Insects and/or Diseases. Several exotic insects have impacted the park's vegetation. Oak mortality by gypsy moths (*Lymantria dispar*) may be partially responsible for decline in oak in the park (Mahan 2004). Defoliation attributed to gypsy moth has declined dramatically over the last decade due to the introduction of a fungus that is fatal to the pest and due to the application of a lethal bacteria. Occasional outbreaks of gypsy moth populations are still possible. The ridges, south-facing aspects, and dry plateau areas with significant oak component have the potential for being most affected (Mahan 2004).

Infestation of *Tsuga canadensis* (hemlock) by *Adelges tsugae* (hemlock wooly adelgid) is now considered widespread in the park. Many stands of hemlock are likely to die and survival of individual trees or small stands may depend on human intervention (Vanderhoorst 2007). Decline of hemlock may represent the single greatest change to vegetation in the park in the near future (Vanderhoorst 2007). Exotic insects and/or diseases also threaten *Fagus grandifolia* (American beech),

Cornus florida (dogwood), *Juglans cinerea* (butternut), and other native plant species.

Timber Harvesting. Illegal and legal logging continues to occur within the authorized boundaries of the park. Threats from logging include fragmentation of continuous forest blocks and erosion from logging roads.

Visitor Use Impacts on Rare Vegetation Associations. A high proportion of the potentially rare vegetation associations in the park are associated with riparian zones or cliffs. These are areas of the park where recreation activities (boating, fishing, rock climbing, and sightseeing) are concentrated and threaten occurrences of potentially rare vegetation communities and their component plant and animal species (Vanderhoorst 2007). Rock-climbing can lead to decreased abundance and richness of vascular and nonvascular plants and lichens, indicating that the entire biotic community may be affected (McMillan et al. 2003). Fishing, recreational day use, and river access threaten the park's two globally rare high Appalachian flatrock communities.

Alteration of Natural Flooding Regimes. The park's rare Appalachian flatrock communities are dependent upon catastrophic flooding to retain the early succession dominance of the locally rare sedges, cedars, pines, and other plants typical of these sites. With construction of Bluestone Dam and consequent reduction of catastrophic flooding, species characteristic of other riparian and mesophytic communities have invaded the Appalachian flatrock communities. Regulation of water flow in the New River has also caused the soil layer to accumulate at flatrock sites, thus permitting hardwood species and non-natives to invade (Mahan 2004).

Invasive Plants. The spread of exotic plant species poses the greatest threat to the park's native vegetation because of their ability to often outcompete native species (Vanderhoorst 2007). Early successional vegetation has reclaimed many areas which were cleared in the past, especially where abandoned farms and mines have been acquired by the NPS. Vegetation in these areas usually includes a large component of exotic plant species, including intentional introductions and weeds. Weedy exotics have also become established in natural vegetation types, especially in rich forests and riparian communities (Vanderhoorst 2007). Kudzu is a very pervasive nonnative plant in the park that threatens natural communities as well as cultural resources. Japanese knotweed has completely transformed several kilometers of riparian shoreline into mono-cultures of knotweed. Garlic mustard (*Alliaria officinalis*) another aggressive colonizer, along with Japanese stilt grass (*Microstegium vimineum*) threatens large expanses of mesic bottomland habitat that is home to most of the park's rare plant species. Japanese knotweed (*Polygonum cuspdatrum*) and purple loosestrife (*Lythrum salicaria*) are particularly

damaging to floodplain habitats because of their ability to rapidly colonize native and disturbed areas.

3.2.5 Aquatic Wildlife

- **Fish**

A variety of habitat types in the New River support a diversity of fish. Biological surveys indicate that from 72 (NPSpecies 2003) to 90 (Purvis et al. 2002) species of fish are present in the park. WV GAP data predicts that 68 species of fish occur in the park, representing 40 percent (68 of 167 species) of the fish species known from West Virginia and 10 percent (7 of 68 species) of the species of special concern from West Virginia (WV Gap Analysis Program 2003).

The most common species within the New River are bigmouth chub (*Nocomis platyrhynchus*), spotfin shiner (*Cyprinella spiloptera*), silver shiner (*Notropis photogenis*), mimic shiner (*Notropis volucellus*), bluntnose minnow (*Pimephales notatus*), channel catfish (*Ictalurus punctatus*), flathead catfish (*Pylodictis livaris), and smallmouth bass* (Lobb et al. 1987, Purvis et al. 2002). Small tributaries contain brook trout (*Salvelinus fontinalis*), rosyside dace (*Clinostomus funduloides*), blacknose dace (*Rhinichthys atractulus*), creek chub (*Semotilus atromaculatus*), mottled sculpin (*Cottus bairdii*), and fantail darter (*Etheostoma flabellare*).

Native Nongame Fish. The New River drainage has a native fish fauna that is distinct from those of the rest of the Ohio River system (Jenkins et al. 1994). The fauna are composed of relatively few native species with a high proportion of these species being endemic (species with their native range restricted to a certain geographic area) (Lincoln et al. 1982). The high rate of species native only to the area is primarily due to the isolation of the New River from neighboring river systems by Kanawha Falls (Sheldon 1988). Seven species of fish are endemic to the New River drainage (Stauffer et al. 1980, Jenkins et al. 1994): bigmouth chub, New River shiner (*Notropis scabriceps*), Kanawha minnow (*Phenacobius teretulus*), fine-scaled saddle (candy) darter (*Etheostoma osburni*), Bluestone sculpin (*Cottus* sp. [undescribed]), Kanawha darter (*Etheostoma kanawhae*), and Appalachian darter (*Percina gymnocephala*). However, only the bigmouth chub, a species of special concern in West Virginia and the New River shiner have been collected within the boundaries of the park (Stauffer et al. 1980, Welsh et al. 2001, Purvis 2004).

The bigmouth chub spawns in mid-May in riffle, run, and tail-of-pool habitats (Lobb et al. 1988). Areas with gravel (used for nest building, shallow depths, and moderate velocities are preferred spawning habitat for this species (Lobb et al. 1988).

Nonnative Fish. The New River watershed has an unusually high number of nonnative fish. Forty-seven species of fish in the New River watershed are native and 43 are nonnative (Purvis et al. 2002). With 48 percent of its fish fauna being

nonnative, the New River system has the largest number and proportion of nonnative fish species among major eastern and central North American drainages (Jenkins et al. 1994, Mott 1995). Prior to European settlement, Kanawha Falls acted as a natural barrier to fish migration, and the portion of the New River above the falls was relatively low in fish diversity but had a high rate of endemism (Jenkins and Burkhead 1994). Today, as a result of nonnative species introductions, species distribution above and below the falls is about equal (Cincotta et al. 1999). Recent research indicates that several species of nonnative fish have expanded their range in the park (Cincotta et al. 1999). The most recent addition to the New River fauna is the rudd (*Scardinius erythrophthalmus*), a minnow native to Europe (Easton et al. 1991).

One factor that appears particularly important in the introduction and the spread of nonnative fish species in the park is dumping of bait buckets by anglers (Purvis et al. 2002). In particular, least brook lamprey, telescope shiner, whitetail shiner, spottail shiner, and variegated darter are probably benefiting from bait bucket dumping (Purvis et al. 2002). The introduction of nonnative fish and their range expansions within the New River could have negative effects on native fish populations (Mahan 2004). For example, the variegated darter and rainbow darter (*Etheostoma caeruleum*) are nonnatives that may out compete natives (Welsh et al. 2001).

Game Fish. The New River within the park is one of the most important warm-water fisheries in West Virginia and is one of the most heavily fished areas in the eastern United States (Purvis et al. 2002, Jones et al. 2003). The New River contains excellent warm-water fish habitat, with a pool-riffle geomorphic structure, abundant cover, and generally good chemical quality. New River game fish include muskellunge, channel and flathead catfish, white crappie (*Pomoxis annularis*), black crappie (*Pomoxis nigromaculatus*), smallmouth bass, spotted bass (*Micropterus punctulatus*), largemouth bass, and walleye (*Sander vitreum*) (NPS 1994). Most game fish presently found in the New River were deliberately introduced, and only four game fish, American eel (*Anguilla rostrata*), channel and flathead catfish, and green sunfish (*Lepomis cyanellus*), are native (Jenkins et al. 1994). In addition the state of West Virginia stocks nonnative rainbow and brown trout in the tributaries to the New River within the park (Mott 1995).

One of the most sought after game fish in the park is the smallmouth bass. This game fish is not native to the New River or its drainages and was probably first introduced in West Virginia in the early 1800s (Jenkins et al. 1994). This species supports a valuable recreational fishery throughout its native and introduced range. Smallmouth bass decrease in abundance downstream of Bluestone Dam, correlating with a decrease in macroinvertebrate production downstream from the dam (Easton et al. 1995). Catch-and-release regulations are in effect for smallmouth and largemouth bass in the park between I-64 and the takeout at Grandview Sandbar).

Brook trout, brown trout, and rainbow trout are stocked by the WV Division of Natural Resources in numerous tributaries of the New River for purposes of maintaining a put and take fishery. Some streams are also stocked by local chapters of Trout Unlimited. It is believed that most stocked trout are caught within a short time after stocking, although many fish may live for many weeks or months after stocking. An apparently self-maintaining population of brook trout has become established in Buffalo Creek, which is designated "fly-fishing only" by the state. An apparently self-maintaining population of brown trout has become established in lower Glade Creek, which is designated "catch-and-release" by the state.

- **Aquatic Invertebrates**

Molluscs, crayfish, and other macroinvertebrates are important components of aquatic environments in the park.

Mussels. Native mussel communities are an important part of the benthic community in the park. The majority of mussel beds in the park are in the upper third of the park (Jirka et al. 1987). Mussels decrease significantly in abundance below Glade Creek with no living or dead mussels found in the lower eight miles of the river within the park (Jirka et al. 1987. Eight mussel species in the park are predominately found on gravel, cobble, and sometimes sandy substrate. Submerged aquatic vegetation is important to establishment of mussel beds in the park because it provides habitat to the fish hosts of the larval mussels (Jirka et al. 1987). Additionally the environmental conditions created by islands in the river seem to support mussel beds (Jirka et al. 1987).

Although there are abundant mussel fauna in the park, the population is relatively low in diversity (eight species) when compared to the diversity of mussels (34 species) found in the Kanawha River (Taylor 1983). Physical barriers to upstream dispersal of fish and mussels, particularly Kanawha Falls, probably have the greatest influence on mussel diversity in the park (Jirka and Neves 1987). Mucket pearly mussel (*Actinonaias [ligamentina] carinata*) is the most common mussel species within the park, although it has never been collected upstream of Roundbottom Creek (Markham et al. 1980, Pennington and Associates 2002).

Because native mussels are declining throughout the Appalachians, and because of their dependence on good water quality, most native mussels are recognized as species of special concern in West Virginia.

Crayfish. Seven species of crayfish are known to exist within the park, of which only the Appalachian brook crayfish (*Cambaraus bartonii*) and rock crayfish (*Cambaraus carinirostris*) are native. The nonnative species were likely introduced by anglers as discarded or escaped bait (Purvis et al. 2002).

Crayfish are an important food item for many birds, mammals, and reptiles and are the major food item for large smallmouth bass (Roell et al. 1985). Crayfish also support an important recreational and commercial bait fishery in the park (Nielsen et al. 1988, Jones at al 2003). At current levels the commercial harvest seems to be sustainable in the park with annual harvest by anglers and commercial bait catchers at about 4 percent of annual production (Roell et al. 1985).

Macroinvertebrates. Monitoring for invertebrates in the New River indicates that aquatic invertebrate abundance is highest directly below Bluestone Dam and decreases downstream (Voshell 1985) and that the macroinvertebrate community is most diverse at Sandstone Falls (Voshell et al. 1996).

Hellgrammites (*Megaloptera* sp.) are relatively large aquatic macroinvertebrates that provide food for game fish and bait for anglers and support a recreational and commercial bait fishery in and around the park (Nielsen et al. 1988, Roell et al. 1985). Approximately 8 percent of the annual production of age 1 and 2 hellgrammites is harvested by anglers and commercial bait dealers (Roell et al. 1985)

Black Fly Larva. Black flies are found throughout the New River with the primary breeding area in the river stretch between Hinton and Meadow Creek (Voshell 1984). Black flies are an important food source for foraging fish, including smallmouth bass.

Other Aquatic Invertebrates. Little information is available about aquatic gastropods in the park (Mahan 2004). At least five species of pulmonate snails are found in the New River (Dillon et al. 1982). Abandoned mine portals in the park may provide significant habitat for cave isopods (Mahan 2004).

- **Aquatic Wildlife Management Concerns**

Fishery Management and Introduction of Nonnative Species. Nonnative fish generally threaten native fish assemblages through competition for habitat and food (Mahan 2004). Enabling legislation for the park permits WV DNR to stock trout within the park in consultation with the NPS. The NPS currently does not have adequate knowledge about native fish communities and the impacts of stocking nonnative brook, brown, and rainbow trout on native stream ecosystems are largely unknown (Purvis et al. 2002). Scattered literature (Crossman 1991) indicates introduced predatory fishes, like trout, probably alter fish and invertebrate community structure in streams (Garman et al. 1982, Allan 1983). Introduced game fish have been implicated in the decline and extinction of native fish populations (Miller et al. 1989, Moyle et al. 1990). Benthic algal communities (periphyton) may be indirectly influenced by predator-induced depression of algivorous fish (Power et al. 1983) and invertebrates (Feminella et al. 1995, Bourassa et al. 1998).

The native mussel community is at risk from competition with non-native species. The introduced Asian clam (*Cobicula fluminea*) is well established throughout the New River (Stauffer et al. 1980). Unlike native mussels *Cobicula* have free-swimming larvae (Pennak 1989) and therefore do not require a specific fish host to complete their life cycle. The NPS should monitor for the very invasive nonnative zebra mussel (*Dreissena polymorpha*) which has not yet been detected in the park.

Studies of crayfish in the New River have shown dramatic changes in community composition (Roell et al. 1992) due to the likely introduction of nonnative crayfish by anglers as discarded or escaped bait. Whether introduced crayfish have continued to expand their dominance in the community is a threat to the food supply for smallmouth bass and a threat to the commercial bait fishery in the area between Bluestone Dam and Sandstone Falls.

Bti Application to Remove Black Flies. The direct application of Bti by West Virginia to control black fly larva in the New River reduces black fly populations within the park and may detrimentally affect the availability of food (black flies and macroinvertebrates) for foraging fish, including smallmouth bass (Mahan 2004). Currently the change in prey selection by smallmouth bass and other fish that feed on black fly larva is unknown (Mahan 2004). Additional monitoring is needed to determine if spraying Bti has a negative effect on the biota of the river and to examine prey selection of fish post-Bti application to determine how prey use has changed due to control of black fly larva in the New River.

Sewage Pollution / Agricultural and Urban Runoff. Poor water quality caused by inadequately treated wastewater, agricultural runoff, and runoff from urban areas in the New River and its tributaries threatens native, nonnative, and game fish populations (Mahan 2004). Poor water quality in the New River also threatens native mussel communities (Mahan 2004).

Timber Harvesting. Unless carefully managed, timber harvest can substantially degrade habitat and fish populations (Bisson et al. 1992). In general there is a reduction in fish species diversity attributed to habitat simplifications, and an increase in standing crop biomass attributed to greater light penetration and autotrophic production (Bisson et al. 1992). Aquatic invertebrates are also adversely be affected by clear-cut timber harvest (Bisson et al. 1992).

Impoundments. High flow in the New River caused by dam discharge or natural flooding events could interrupt smallmouth bass and bigmouth chub spawning activity and decrease foraging success, especially during summer (Graham et al. 1986, Easton et al. 1995). Minimum water flow must maintain sufficient depths over spawning areas to prevent dewatering, but not too high so as to erode gravel nest mounds, especially during peak spawning activity (Lobb et al. 1988).

Increases in natural or human-induced (e.g., dam releases) flood events could result in increased streambed and bank instability, streambed scouring, erosion, and turbidity, which discourages riparian vegetation, streambed vegetation, and algal growth (Lobb et al. 1987). Any reduction in macrophytes and the dislodging of clinging macroinvertebrates would reduce the standing stock of macroinvertebrates in the river and potentially have negative impacts on fish productivity (Lobb et al. 1987).

Changes in substrate type and stability (e.g., erosive discharges), and high silt loads associated with dam discharges and sedimentation may negatively affect mussel communities (Jirka et al. 1987).

3.2.6 Terrestrial Wildlife

- **Mammals**

The park contains 91.5 percent (54 of 59 species) of the mammalian species known to occur in West Virginia and 77 percent (17 of 22 species) of the mammalian species of special concern in West Virginia.

White-tailed Deer. The population of white-tailed deer in the park vicinity (WV DNR District IV) is approximately 33 deer per square mile of available deer habitat (WV DNR 2003). This density is significantly higher than estimates of pre-European settlement deer densities of approximately 8 to 20 deer per square mile on the Appalachian plateau (Horsely et al. 2003). The WV DNR has recognized the population increase and has adjusted hunting regulations in an effort to control deer numbers (S. Pugh, 2003, NPS, pers. comm.). Annual harvest records for the park are unknown. In 2002 there were 29,927 deer harvested from WV DNR District IV, of which only 47 were recorded as being taken in the park. Hunters probably harvested more deer within the park but failed to indicate locations on harvest report cards (Mahan 2004).

Black Bear. The black bear population in West Virginia is generally growing. The majority of the population increase is centered in the southern part of the state, including Raleigh, Fayette, Boone, and Kanawha Counties. Recent studies in these counties indicate a very healthy bear population with an average litter size of three cubs. WV DNR has expanded bear hunting opportunities to keep pace with the biological and sociological carrying capacities for bears in each region of the state. WV DNR recently opened a statewide archery season, additional gun hunting, and a special November gun season in five southern counties, including Fayette and Raleigh where bear numbers exceed management objectives. The actual population size and harvest numbers for black bear in the park are unknown.

Allegheny Woodrats. The park contains globally significant populations of Allegheny woodrats (*Neotoma magister*), a federally designated species of special concern that is in decline throughout the rest of its range in the eastern United

States (Balcom et al. 1996). Most populations within New River Gorge National River are stable; however, a few populations have declined significantly since 1999.

The woodrat populations in and around the park may represent the core population for this species in the eastern United States. The reason for their persistence in the park is unknown, although it may be due to the occurrence of abandoned mine portals (Mahan 2004).

Bat Communities. The park contains a regionally significant assemblage of bats that includes 10 species that have been documented through various study methods. Bats in the park use abandoned mine portals as roosting sites and cliffs for foraging (Johnson 2003). Two federally endangered species of bats (Virginia big-eared bat [Cornynorhinus townsendii] and Indiana bat [Myotis sodalis]) have been identified as using abandoned mine portals in the park. In addition two state-rare species of bats, Rafinesque's big-eared bat (*Cornynorhinus rafinesquii)* and small-footed myotis (*Myotis leibii*), also have been identified as using abandoned mint portals (Castleberry et al. 2002).

Small Mammals. Ten species of small mammals (mice, voles, shrews, and moles) have been trapped in the park (Buhlmann et al. 1987). The long-tailed shrew (*Sorex dispar*), southern pygmy shrew (*S. hoyi winnemana*), and golden mouse (*Ochrotomys nuttalli*) are small mammals of special concern the have been document in the park (McDonald et al. 1989, WV DNR 2003). Other rare species of small mammals such as rock vole (*Microtus chrotorrhinus*), rock shrew (*S. dispar*), and water shrew (*S. palustris*) all may occur in the park as suitable habitat seems to be available.

Fur-bearing and Other Mammals. Little is known about the distribution and density of populations of riparian and furbearing mammals such as the northern river otter, beaver, mink and other weasels, muskrat, and bobcat (*Felis rufus*). Beaver (*Castor Canadensis*), mink (*Mustela vison*), muskrat (*Ondatra zebithicus*), and river otter (*Lutra Canadensis*) have been introduced into the New River system (Purvis et al. 2002).

- **Birds**

Currently 233 species of birds are known to occur in the park (NPSpecies 2003). This represents 74.4 percent (125 of 168 species) of the species found in West Virginia and 42 percent (25 of 59 species) of the species identified as state species of special concern (WV Gap Analysis Program 2003) (see Appendix F, Table F.3). Of the 233 species found in the park, approximately 93 were detected during breeding season and therefore may nest in the park (Pauley et al. 1997)

Neotropical Migratory Birds. The park is globally significant in providing critical habitat for neotropical migratory birds (neotropical migrants), especially the wood warblers (Family Parulidae). These species depend upon unfragmented mixed

deciduous forests with well-developed canopies and gap dynamics (e.g., tree falls) in place. Cerulean warblers, a neotropical migrant that is in decline throughout the Northeast appears to have a concentrated distribution in and around the park (Rosenberg et al. 2000). This population of cerulean warblers may be a critical source population for the Appalachians (Rosenberg et al. 2000). Several other species of neotropical wood warblers found in the park, including Swainson's warbler (*Limnothlypis swainsonii*), wood thrush (*Hylocichla mustelina*), Kentucky warbler (*oporonis formosus*), and worm-eating warbler (*Helmitheros vermivorus*) are either species of special concern in West Virginia (Swainson's warbler) or are on the Partners in Flight (PIF) watchlist (wood thrush, Kentucky warbler, worm-eating warbler) (USFWS 1999). The PIF watchlist does not include federally threatened or endangered species; rather, it identifies those species that are still fairly common but which will probably someday become endangered or threatened (USFWS 1999). Several species on the watchlist have declined precipitously over the past several decades, occupy habitats that are under severe threat, are found in low numbers, or have such restricted ranges that their existence is tenuous (USFWS 1999).

Aside from the species dependent upon mature, unfragmented forests, some bird species depend upon small (<1 ha {2.47 ac}) forest gaps created by tree falls and other natural and/or human induced disturbances (e.g., logging, land clearing around abandoned mine sites). These forest gaps contain early successional vegetation communities and add vegetative and structural diversity to the forest landscape. The golden-winged warbler (*Vermivora chrysoptera*), a species of special concern in West Virginia and declining throughout the eastern U.S., is a species that depends on these gap dynamics and is currently found in the park (Pauley 1993, Pauley et al. 1997, Canterbury et al. 2002).

Hemlock stands provide another important habitat component for rare species of birds at the park (Wood 2000). The Swainson's warbler and Louisiana waterthrush (*Seiurus motacilla*), two species that are either species of special concern or listed on the PIF watchlist in West Virginia, nest along streams in forests with some hemlock and/or rhododendron component (Wood 2000, O'Connell et al. 2003).

Waterbirds and Waterfowl. The waterways of the park support species of birds that depend on good water quality (e.g., Louisiana water thrush, belted kingfisher). Water-dependent species found in the park, such as green herons (*Butorides virescens*), great blue herons (*Ardea herodias*), spotted sandpipers (*Actitis macularia*), and various species of waterfowl, use riparian corridors along tributaries and emergent weed beds for foraging habitat (Buhlmann et al. 1987).

Raptors. Thirteen species of raptors have been documented in the park. Peregrine falcons (*Falco peregrinus*), once a federally listed species and since delisted, have been sighted in the gorge and could potentially nest on the cliff faces in the park (Sullivan 1995). Peregrine falcons have been hacked in the park, but no current or

historical nesting records for the park exist (Sullivan 1995, Jarvis 2002). Another raptor, the bald eagle (*Haliaeetus leucocephalus*), has been documented in the park (NPSpecies 2003).

Wild Turkey. Based on harvest records, wild turkey populations in West Virginia appear to be stable or expanding (WV DNR 2003). Biologists estimate that there are approximately 130,000 turkeys in West Virginia (WV DNR 2003). The last decade has ranked as the most productive turkey harvest period on record in West Virginia. In 2002 there were 19 turkeys harvested from the park (WV DNR 2003). Hunters may have harvested many more turkeys in the park but failed to indicate locations on harvest records.

- **Reptiles**

Thirty-eight species of reptiles have been documented in the park (NPSpecies 2003). Approximately 79.5 percent (31 of 39 species) of the reptiles of West Virginia are predicted to occur in the park and 62 percent (10 of 16) of the reptile species of special concern are predicted to occur in the park (see Appendix F, Table F.3).

Turtles. Two subspecies of the painted turtle (*Chrysemys picta marginata* and *C. p. picta*) occur in the park. It is one of the few areas where these subspecies interbreed, making the park regionally significant for painted turtles (Buhlmann and Vaughan 1987). The eastern river cooter (*Chrysemys concinna*), a species of special concern in West Virginia, is native in the park. One other turtle species of special concern, the common map turtle (*Graptemys geographica*), occurs in the park.

Lizards and Snakes. Timber rattlesnakes (*Crotalus horridus*) are known from several locations in the park, including Stone Cliff, Glade Creek, and Grandview, as well as Babcock State Park where there are den sites. Large populations of fence lizards (*Sceloporus undulatus*), five-lined skinks (*Eumeces fasciatus*), and copperheads (*Agkistrodon contortrix*) are also present. Three other reptile species of special concern occur including the broad-headed skink (*Eumeces laticeps*), eastern worm snake (*Carphophis amoenus*), and rough green snake (*Opheodrys aestivus*).

- **Amphibians**

Continuous forest, abandoned mine portals, and river/stream systems of the park provide habitat for a diverse, nationally significant assemblage of amphibians. Forty-eight species of amphibians have been documented in the park (NPSpecies 2003). These species represent 82 percent (37 of 45 species) of the amphibian species known from West Virginia and 60 percent (10 of 17 species) of the state species of special concern (WV Gap Analysis Program 2003).

Salamanders. An outstanding diversity of woodland salamanders occur in the park (Pauley et al. 1997), typical of the southern Appalachians which contain the most diverse temperate salamander communities in the world (Southern Appalachian Biodiversity Institute 2003). Tributaries of the New River contain a high species richness of salamanders within the park as due abandoned mine portals.

The black-bellied salamander (*Desmognathus quadramaculatus*), a species of special concern in West Virginia, is at the northern most portion of its range in the park and more common there than previously thought (McDonald et al. 1989). Cave salamanders, another species of special concern in West Virginia, use abandoned coal mines (Pauley et al. 1997, Bryan et al. 1999). Cave salamanders use abandoned mine portals and other habitat (e.g., fractured rock) in the park. Wet sandstone cliffs are critical habitat for the rare green salamander (*Aneides aeneus*) and the common slimy salamander (*Plethodon glutinosus*) (Buhlmann et al. 1987, Pauley 1993, Pauley et al. 1997). Dowdy Creek appears to be an especially important, high quality stream supporting both black-bellied and spring salamanders (*Gyrinophilus porphyriticus*) (Buhlmann and Vaughan 1987).

The mudpuppy (*Necturus maculosus*), a large aquatic salamander has been captured in the park. Intensive searches have failed to document the presence of the eastern hellbender (*Cryptobranchus alleganiensis*) – another large aquatic salamander.

Frogs and Toads. Little is known about the distribution and abundance of frogs and toads in the park. They are a potentially important food resource for herons and riparian mammals.

- **Impacts of Hunting on Terrestrial Wildlife**

New River Gorge National River when combined with the Bluestone National Scenic River and the Gauley River National Recreation Area forms the largest public hunting area in southern West Virginia. Hunting is permitted within most of the New River Gorge National River, but is restricted from the former Grandview State Park area and other high use areas. Much of the land still in private ownership within the park boundary is leased to private hunting clubs and is restricted to club member use only.

No research is available describing hunting patterns and hunter intensity at New River Gorge National River (Mahan 2004). However, national and state trends suggest that big game hunting is more likely to occur than small game hunting within the park boundaries (Hooper et al. 2006). Deer hunting probably is the most popular activity, based in part on historical and current hunter numbers, days afield hunting, and hunting expenditures (Hooper et al. 2006). National and state trends also suggest that squirrel hunting is the most popular small game activity (Hooper et al. 2006). Due to small sample sizes within the national surveys, existing

information is not sufficient to make firm conclusions about preferences or intensity of migratory bird hunting and other animal hunting within the park boundaries (Hooper et al. 2006).

Recent study of the impacts of hunting in the park indicates that hunting in accordance with applicable state regulations has not caused adverse effects on any of the species of mammals or birds which are or may be hunted and that currently occur within the park boundaries (Hooper et al 2006). Recent study further indicates that no evidence exists to support the position that any other species found within the park boundaries have been affected adversely by hunting (Hooper et al 2006).

- **Terrestrial Wildlife Management Concerns**

Loss of Forest Habitat and Forest Fragmentation. Populations of neotropical wood warblers are threatened by loss of forest habitat and forest fragmentation, particularly along waterways and in upland forests. Forest fragmentation also threatens the park's globally significant population of Allegheny woodrats.

Deer Overbrowsing. (see Section 3.2.4 above)

Exotic Insects and/or Diseases. Hemlock-dependent species of neotropical birds will be adversely threatened if hemlock woolly adelgid causes hemlock decline in the park. The rare water shrew (*S. palustris*) – if present in the park, as suspected – would be negatively affected by loss of eastern hemlock.

Water Quality. Poor water quality in the New River and its tributaries threatens populations of aquatic-dependent avian species, turtles, salamanders, and riparian fur-bearing mammals in the park.

Invasive Species. Invasive nonnative plants in wetlands and riparian areas may adversely affect breeding habitats for salamanders. Nonnative frogs such as the green treefrog (*Hyla cinerea*) and squirrel treefrog (*Hyla squirlla*) may be being inadvertently introduced to the park from motor homes.

Collecting. Over-collecting of salamanders by anglers and commercial bait harvesters may threaten salamander populations in the park. Over 50 percent of commercial bait licenses handle salamanders. The black-bellied salamander (*Desmognathus quadramaculatus*) a species of special concern in West Virginia is a particularly popular fishing bait and may be particularly susceptible to over-collecting.

Gaps in Knowledge. Little is known about the occurrence and distribution of many species of special concern in the park; research is needed to ascertain the use of habitat – the New River, the river's tributaries, wetlands, rock outcrops, cliff faces, abandoned mine portals, and ephemeral pools – by these species. Research is also

needed to better understand avian habitat relationships, avian distribution and abundance, and avian reproductive success at the park. Accurate counts of game species taken from the park are needed, particularly for white-tailed deer, black bear, and turkey. Reasons for the persistence of the Allegheny woodrat in the park compared to declines in the rest of their range are not understood. Information about foraging behavior, diet, and habitat use is needed for the park's bat population.

3.2.7 Rare, Threatened, and Endangered Species

Numerous rare, threatened, and endangered species are known to occur in the park (see Figure 3.7 and Appendix F, Table F.3). Species designated extremely rare and critically imperiled in the state of West Virginia include 19 plant species, 2 mammal species (small-footed myotis and Rafinesque's big-eared bat), and 2 mussel species (purple wartyback and pocketbook mussel). The status and distribution of many of these species and their essential habitats within the park are largely unknown.

- **Federally Designated Plant Species**

No federally-designated plant species are known to occur within the park. However two federally-designated plant species (not listed in Appendix F, Table F.3) are suspected although their presence has not yet been confirmed by resource managers. Virginia spirea (*Spiraea virginiana*) is a federally threatened, disturbance-adapted shrub occurring on steeply-slope riparian sites that was found historically along the New River below Hawks Nest Dam in the 1960s (Mahan 2004). Running buffalo clover (*Trifolium stoloniferum*) is a federally endangered species that has reportedly been found on the Cotton Hill floodplain in the park (Mahan 2004).

Two state-designated plant species are under consideration for federal listing as threatened or endangered. Steele's meadow rue (*Thalictrum steeleanum*) is found in three locations in the park on well-drained slopes with relatively open understory.

Bittercress (*Cardamine clematitis*) may be present on the New River floodplain near Stone Cliff, although there is uncertainty as to whether the species present is actually *Cardamine flagellifera*; both *Cardamine* species are southern Appalachian endemics that reach their northern limit in West Virginia and are found only within the park in West Virginia.

- **Federally Designated Mammal Species**

Two mammal species are federally-designated as endangered and one species is federally-designated as a species of special concern. The federally-endangered Indiana bat (*Myotis sodalis*) and the Virginia big-eared bat (*Cornynorhinus townsendii*) use abandoned mine portals as roosting sites and cliffs for foraging. The park contains stable, healthy, globally significant populations of Allegheny woodrats (*Neotoma magister*), a federally designated species of special concern that

New River Gorge National River
Park Significance Statement 4

New River Gorge National River contains a large, outstanding, and representative group of historic places that testify to the experiences of those diverse people who settled and developed this part of Appalachia between the 19th and mid-20th centuries.

Fundamental Resources and Values

- rare historic colliery structures and coke ovens of unmatched integrity, such as at Nuttallburg and Kaymoor, and the historic structures and ruins associated with more than 50 company owned towns
- railroad depots, rail yards, rail grades, steel and timber trestle bridges, railroad equipment, archeological sites and associated towns, like Thurmond, developed to support the railroad
- rare surviving examples of subsistence farms, such as Trump-Lily and Richmond-Hamilton

Other Important Resources and Values

- former community sites, homesteads, and other places in the park where the ancestors of families long associated with the New River lived and worked and where their living descendents today have traditional associations and land-based ties
- the knowledge and cultural values of the families long associated with New River Gorge who have traditionally used the waters of the New River system, the aquatic plants and animals that inhabit those waters, and the native terrestrial plants and animals in and around New River Gorge
- the history and archeology associated with the park's lumbering industry, Civilian Conservation Corps-era state parks, and Native Americans

Table 3.4

New River Gorge National River
Prehistoric Chronology

13000 – 8000 B.C.
Paleo Indian Period

Small, free-wandering groups subsisted by hunting large game animals and foraging wild plants

8000 – 10000 B.C.
Archaic Period

Shift to seasonal hunting and gathering; evolved to more settled people who supplemented hunting and gathering by harvesting sunflowers, pumpkins, and gourds

1000 B.C. – A.D. 900
Woodland Period

Small groups living in rockshelters and some villages with economies based on intensive maize-based agriculture

A.D. 900 – 1670
Late Prehistoric Period

Small groups with increasing sedentary village life and dependence on cultivation of corn, beans, and squash

is in decline throughout the rest of its range in the eastern United States (Balcom et al. 1996).

The federally endangered northern flying squirrel (Glaucomy volans fuscus), is predicted to occur in the park but never documented (WV Gap Analysis Program 2003).

- **Federally Designated Amphibian Species**

The Cheat Mountain salamander (*Plethodon nettingi*), a federally listed threatened species, is predicted to occur in the park (WV GAP 2003). However it has not been documented and the appropriate habitat (boreal forests) is not present in the park.

3.3 Cultural Resources

3.3.1 Prehistoric Archeological Resources

- **Prehistoric Archeological Resources**

The first human occupants in the New River Gorge area were Paleo-Indian hunters who arrived about 13,000 years ago. Two features of the gorge area significantly influenced prehistoric use of the region, making it an extremely interesting location archeologically (Pollack and Crothers 2005). Native Americans who inhabited the area in prehistoric times dating back over 13,000 years ago were primarily attracted by the abundance of natural resources in its uplands and riparian areas. Level ground in the uplands on either side of the New River also provided natural north-south travel corridors connecting prehistoric cultures in the Southeast and Ohio River Valley.

Intermontane and Dan River Cultures upstream of the gorge included prehistoric cultures of the valley and ridge province of the upper Tennessee River system and the upper reaches of the Roanoke River Valley. A significant Fort Ancient Bluestone phase farming community was present in the Bluestone Lake area immediately upstream from the gorge. Downstream of the gorge prehistoric groups had more affinities with the Fort Ancient Culture of the Kanawha and Ohio River Valleys. While the cultures represented tribal societies of similar sociopolitical complexity, they were distinguished from one other by differences in material culture, subsistence patterns, and village organization (Pollack and Crothers 2005). Non-local goods found at sites upstream and downstream of the gorge – in the form of marine shell and copper artifacts – suggest that these groups participated in long distance exchange networks, especially after A.D. 1400 (Pollack and Crothers 2005).

The presence of historic trails that appear to have some antiquity and that traverse the uplands in the vicinity of the gorge also suggests some level of interaction among groups living to the south and north (Pollack and Crothers, 2005). Primary trails crossed the gorge area, but did not follow the New River itself due to the

natural obstacles. Secondary trails also crossed the gorge, fording the river at different places.

Recorded Prehistoric Sites. Archeological investigations conducted since the late 1800s have documented 355 prehistoric archeological sites within the park or within one kilometer of the park boundary (Pollack and Crothers 2005). Prior to 1980 archeologists had identified only 13 prehistoric sites within the park. Since 1980 the National Park Service, the West Virginia Geological Survey, the West Virginia Archaeological Society, cultural resource management consultants, and avocational archeologists have recorded an additional 342 prehistoric sites. The most comprehensive effort was included as part of the *Archaeological Overview and Assessment of New River Gorge National River* (Pollack and Crothers 2005). This study included a survey of 1,013 acres designed to obtain information regarding prehistoric utilization of a variety of environmental zones with the park.

Surface collections, documented private artifact collections, and shovel testing have provided most of the available information for the 355 recorded sites. Archeologists have conducted limited excavations at only a few sites. Most sites have not been evaluated for eligibility for inclusion in the National Register of Historic Places. Currently, although several are identified as significant archeological resources (Fuerst 1981) none are nominated to or have formally been determined eligible for the National Register.

Site Distribution Patterns by Time Period and Site Type. In general the prehistoric sites tend to occur in five geologic and physiographic settings within the park (Pollack and Crothers 2005):

- large floodplains and relatively flat slopes close to water with old alluvial and colluvial deposits
- cliff-forming Raleigh and Nuttall sandstone members of the New River Formation
- upland settings associated with ridgetops, overlooks, and the level landforms at stream junctures
- major tributary valleys of the New River
- some features of the New River, such as major falls and shoals may have attracted prehistoric groups

Based solely on the number of identifiable component(s) found at the 355 sites the prehistoric activities in the New River Gorge area seems to have peaked during the Late Archaic (3000-1000 B.C.) and then gradually declined through the Late Prehistoric (A.D. 1000-1700) (Pollack and Crothers 2005). The most intensive utilization occurred during the Late Middle and Late Woodland periods. The sites utilized included small upland camps, rockshelters, mounds, large bottomland

camps, and perhaps some villages. The most common site type recorded is an open habitation without subsurface features (139 sites or 39%), typically characterized by a surface scatter of chert flakes. Most of these sites are located upstream from Sandstone Falls, on wider floodplain areas and terraces. The second most commonly found site is a rockshelter (107 sites or 30%). Through time there was an increase in the use of rockshelters, with Woodland and Late Prehistoric groups using these types of sites to a greater extent than earlier groups. Other sites types include multiple activity areas that were used for tool manufacture and rejuvenation, and hunting and gathering camps. Only one earth and stone mound has been documented in the park. Because no Paleo-Indian sites have been excavated in West Virginia, the two Paleo-Indian sites recorded in the park would be very significant if further research determines that the sites have intact Paleo-Indian components (Pollack and Crothers 2005).

- **Prehistoric Archeological Resource Management Concerns**

Gaps in Knowledge. Additional archeological research in the park is needed to document potential prehistoric archeological sites and to fully understand the most potentially significant sites investigated in previous field studies. Because of the park's position between the prehistoric cultures in the Ohio River Valleys and those in the Southeast, further prehistoric archeological research has the potential to significantly contribute to understanding of the cultural diversity of, and interaction between, Native American groups who once lived in western West Virginia and southwestern Virginia (Pollack and Crothers 2005).

National Register Nominations. As significant prehistoric archeological sites are identified in the park, an evaluation of them should be completed to assess their eligibility for listing and site management plans prepared for their protection.

3.3.2 Historic Contexts

Five historic contexts provide a framework for describing and understanding the cultural resources within the boundaries of New River Gorge National River: 1) the coal industry, 2) the railroad industry, 3) the lumber industry, 4) Euro-American settlement/agriculture, and 5) recreation/state parks (Unrau 1996, Workman et al. 2005, Stahlgren et al. 2007).

- **Coal Industry Historic Context**

Historic Development of the New River Coal Field. Lying in the center of the rich Appalachian bituminous coal field, two-thirds of the land in West Virginia is underlain with coal seams, fifty of which are sufficiently thick to be considered minable. Found in all but two of West Virginia's 55 counties coal has been mined in the state for more than a century. From 1927 until 1973 West Virginia led the nation in coal production in the United States. In no other state in the nation has coal been so central to economic development and social life.

Table 3.5

New River Gorge National River
Historic Chronology –

1670 – 1798
Early Exploration and Settlement

Traders entered the region in the 1670s; early settlement began in 1744 primarily by the English, German, and Scotch-Irish; by the mid-1700s indigenous culture had changed irrevocably

1798 – 1873
Pre-Industrial Period

A self sufficient farm economy evolved in the gorge; construction of the James River and Kanawha River Turnpike enabled some farmers to engage in trade

1873 – 1902
Industrialization

Opening of C&O Railroad through the gorge enabled rapid growth of the coal and lumber industries; thousands of workers – including many immigrants from Europe and blacks – moved into the gorge

1902 – 1925
Prosperity

Production from the New River coal field reached its peak; new waves of immigrants arrived

1925 – 1960
Post Industrial Recession

The Great Depression came early and stayed late; the over expanded coal industry became unprofitable and timber supplies were depleted; out-migration commenced and many of the gorge's towns were abandoned; mining largely ceased by the early 1960s

The southern West Virginia coal fields exported huge amounts of coal recognized internationally for its quality. Production commenced in 1873 when the C&O Railroad service became operational in the area. Growth of the coal industry during the 1870s and 1880s was very rapid and towns and cities grew up throughout the region. Before the development of coal, the local economy was based predominantly on subsistence agriculture and there were few manufacturing jobs. By the early 1920s southern West Virginia was a heavily populated region with an industrial economy dependent upon coal production and linked to national and international markets. Largely because of plants along the New River the state was also a major producer of high-grade coke required for steel production. Throughout this period West Virginia remained devoted to the production of coal and coke destined for distant markets, reliant upon the railroads for transportation.

New River Gorge lies within the New River coal field. The coal-bearing rocks consist of some 2,100 feet of interbedded sandstone, shale, and underclay, the principal seams of which are the Beckley, Sewell, and Fire Creek formations. The importance of the coal in the gorge area is derived from its suitability for power plants and metallurgical use. It is a clean-burning, low-sulfur, low-ash bituminous coal that is internationally recognized for its quality and high energy content (BTUs).

Coal development in the New River coal field was originally characterized by small enterprises, frequently organized on a family basis. Many of the early entrepreneurs who opened and developed the field often came with experience in other coal fields, especially from eastern Pennsylvania and Great Britain. The first coal shipment over the C&O Railroad was made from Quinnimont by Joseph Beury in 1873, and included coal extracted from the Fire Creek seam in his Quinnimont mines. Other entrepreneurs – such as John Nuttall – soon became interested the New River coal field, developing other mines throughout the New River Gorge. The 1880s were a boom decade in the New River Gorge area as dozens of mines were opened and coal towns settled. These early operations were located along the C&O mainline, with the majority of the mine openings high on the walls of the gorge and the mining towns located on the plateau surrounding the gorge or at the bottom of the gorge along the railroad. Later development of the coal field accessed rich seams on either side of the river as branch lines were built up tributary drainages such as Loup Creek to Glen Jean and Keeney Creek in the Nuttallburg area.

Production in the New River coal field increased dramatically in the early years of the 20th century, peaking in 1916 when Fayette and Raleigh Counties produced more than 18 million tons of coal, with Fayette County ranking second overall in statewide production. After 1917 a coal slump settled over the field. Between 1922 and 1933, production levels fluctuated with an overall decrease in the quantity of coal mined. This decrease followed the overall industry trend throughout West Virginia in the 1920s and early 1930s as the industry suffered from the effects of overexpansion and mines closed when demand slackened. The coal market

Table 3.6

New River Gorge National River
Coal Industry Complex – Known and Potential Cultural Resource Types (Unrau 1996)

Primary Production Facilities
- mining portals
- mining machinery

Secondary Production Facilities
- coal hoist/headhouses
- tipples
- conveyors
- buildings, structures, and objects associated with coal production
- mining plant internal transportation facilities
- facilities for coke-making

Transportation Facilities
- railroad tracks, sidings, yards, and support structures
- rolling stock
- roundhouses, stations, repair shops, and offices

Company Towns
- houses and ancillary outbuildings
- company stores
- community buildings
- private manufacturing/commercial buildings

Buildings in Incorporated Towns Associated with the Coal Industry
- residences and ancillary outbuildings for:
  - coal operators and managers
  - coal miners
  - railroad workers
  - railroad administrators
- private manufacturing/commercial buildings and ancillary outbuildings
- community buildings

Buildings or Sites Associated with Significant Events and/or Personalities in the Mine Wars and the Union Movement during the 1900 – 1930 Period

Environmental Sites
- "gob" piles
- water impoundments

Sites Associated with Recent Historical Figures or Recent Events of Great Significance Related to the Coal Industry

Government Facilities Associated with the Coal Industry

recovered during World War II, and a brief coal boom ensued in the New River field, leading to peak production in the New River field during the late 1940s. Changes in methods of recovering coal resources, such as surface and auger mining, began to accelerate in the 1950s, drastically altering the economy as well as the landscape of the New River field. These changes, together with the working out of some older mines and slackening demand, substantially reduced coal production in the gorge area. By 1968 coal production from the field had dropped dramatically and mining within New River Gorge had stopped.

Company towns throughout the gorge – once bustling with life and activity – were the most important institutions in the coal fields of southern West Virginia and New River Gorge. Housing was a necessity, and the coal operators were the only entities in the region with the means to build it on the massive scale required by the expanding industry. As a result the company town was more prevalent in West Virginia than in any other state. Locations of company towns were determined by proximity to mine outcrop. The basic facilities for mining, the mine opening and the tipple were constructed first. Next consideration was given to the location of a railroad siding. Finally, in the remaining space, whether it was valley floor or hillside, the town was constructed. Some towns in the gorge existed on two or more levels, the river edge and one or more benches or ridges above. New River coal towns, like others in southern West Virginia, practiced a tripartite racial and ethnic form of segregation with separate residential areas for whites, immigrants, and blacks. The quality of housing was simple and poor with better quality homes closer to the town center set aside for white families.

During the boom mining years there were some 45 towns in the gorge. Now few – such as Thayer – remain.

Coal Industry-Related Cultural Resources in the Park. Today most of the gorge's historic properties related to coal mining are best described as historic archeological sites. Abandoned coal mining operations and company towns which might have survived as "ghost towns" in a different environment have deteriorated rapidly in the temperate New River climate. Most structures associated with the coal towns and mines were designed to be short-lived and were dismantled when abandoned. Coal company houses and other structures along the river in the gorge were often salvaged or removed to be rebuilt in communities above the gorge. Many abandoned houses were destroyed by fire or years of neglect because of absentee ownership. More substantial structures, such as coke ovens and tipples, have survived better than the frame residences and mine equipment structures, but all have been subjected to vandalism, salvage, "pot-hunting", and the destructive effects of rapid and dense vegetation growth. The West Virginia State Historic Preservation Office estimates that the extant ruins of most coal towns and mining sites in the gorge contain an average of some 10 to 20 percent of original fabric (Unrau 1996). A few historic structures survive relatively intact in the historic coal

towns and mining sites, but many towns and mines have only remnant ruins while others have disappeared entirely. In the most isolated sections of the gorge many coal town and mining sites have virtually returned to their preindustrial state.

- **Railroad Industry Historic Context**

Historic Development of the Railroads in the Park. Commencing service in 1873, the Chesapeake and Ohio (C&O) Railroad was the first post-Civil War trunk line constructed through the Central Appalachians, stretching 419 miles from Richmond – then one of the south's leading industrial cities – to the Ohio River Valley at Huntington, West Virginia. New River Gorge presented the most challenging section for engineering and construction of the new C&O line due to the vertical gradient, the gorge, the narrow river floodplain, and bedrock conditions. The last sections of the railroad to be built included the Stretcher's Neck Tunnel (completed in July 1872) followed by the last few difficult sections along the lower New River. On January 29, 1883, the last spike was driven at Hawks Nest by dignitaries from Richmond, Virginia.

Although many factors have shaped the New River Gorge area, none has been as significant as the coming of the railroad and the subsequent exploitation of the coal reserves along its route. The impact of the railroad on the culture and landscape of New River Gorge was immediate and dramatic. In the fifty years following the railroad opening, thousands of workers and their families flooded into the gorge to exploit the coal and timber resources that were within easy reach of the railroad. Dozens of boom towns emerged. Development stretched up the tributaries of the New River, following spur lines built to tap outlying coal deposits, including the Keeney Creek Branch Line, Southside Branch Line, Piney Creek Branch Line, Rend Branch Line, Laurel Creek Branch Line, Kanawha Glen Jean and Eastern Railroad, Manns Creek Railroad, White Oak Railway, Glade Creek and Raleigh Railroad, and Sewell Valley Railroad.

With the coming of the railroad to the gorge five principal towns having a direct relationship to the railroad industry were established in the area. These towns – Hinton, Thurmond, Quinnimont, Prince, and Meadow Creek – became notable not only as railroad shipping points but also as settlements having significant rail yard operations and structural elements embodying a distinctive style of industrial railroad architecture. These towns also exemplified the ways in which the railroad industry influenced the historical demographic and socioeconomic patterns of the area.

Aside from these five towns there were numerous other locations along the C&O mainline in the gorge where railroad-related structures were constructed. The same distinctive architectural style was used by the C&O for stations, depots, signal stations, employee residences, and other structures associated with operation and maintenance of the mainline.

Table 3.7

New River Gorge National River
Railroad Industry Complex – Known and Potential Cultural Resource Types (Unrau 1996)

Primary Railway Roadbed Structures/Features

- rail line components – rail bed, tracks, crossties
- roadbed structures – bridges, tunnels, culverts, drainage structures, trestles
- roadbed engineering features – cuts, fills, embankments

Secondary Railway Support Facilities

- railway operations – powerhouses, engine houses, switches, signal towers, block signal bridges, water stations, coaling towers, sanding stations, repair shops, sidings, yards, depots, stations, roundhouses, offices, bunkhouses, manager's houses
- rolling stock

Railroad Service Towns/Centers

- houses/residences and ancillary outbuildings for:
  - railroad operators
  - railroad managers
  - railroad workers
- community buildings
- private manufacturing/commercial buildings

Buildings in Incorporated Towns Associated with the Railroad Industry

- houses/residences and ancillary outbuildings for:
  - railroad operators
  - railroad managers

Government Facilities Associated with the Railroad Industry

Following World War II the role of the railroad diminished. As coal company towns began to disappear after the 1950s, the significance of the railroad began to decline. Paved roads and automobiles enabled miners to live on the plateau rather than within walking distance of the mines. The railroad became less important to the transportation needs of the region. In the 1950s dieselization of the railroad impacted towns throughout America, including the gorge's railroad towns – whose economies were almost entirely dependent on the railroad – as traditionally-skilled workers trained to maintain steam equipment were laid off.

Even with the decline of mining in the New River coal field in the 1950s, and the general decline of the American railroad industry in the 1960s and 1970s, CSX (formerly the C&O Railroad) has continued operations through the gorge. Ultimately the C&O Railroad grew from its initial 419 miles in 1883 to 1,425 miles in 1900 to 2,500 miles in 1920, and 5,100 in 1950. The name was changed to the Chessie System in 1962 when the C&O Railroad acquired the Baltimore and Ohio Railroad. In 1980, following another merger, the Chessie System became CSX, a company headquartered in Jacksonville, Florida, with 27,000 miles of track in 22 states. Today the main commodity that the CSX railroad hauls through the gorge to the Midwest and the East Coast is coal. Amtrak – traveling on the CSX mainline – also continues to provide passenger service to the gorge, with regular stops at Prince and Hinton and a flag stop at Thurmond.

Railroad Industry-Related Cultural Resources in the Park. Since coal operations in the gorge ceased the gorge's railroad towns have declined – with the exception of the town of Hinton. CSX has razed most of railroad related resources. The Hinton Depot remains and is owned by the City of Hinton. The Thurmond Depot remains and is owned by the NPS and used as a visitor center.

The branch rail lines and many of the structures that were associated with the operation of the C&O mainline are no longer needed and have fallen into disuse and decay. Virtually all the track on the branch lines has been removed, leaving only remnants of rail line cuts, embankments, trestles, and culverts. Many of the early railroad structures associated with the operation of the C&O Railroad mainline that are no longer needed for modern rail operations have been razed. NPS has recently rehabilitated two trestles on the Keeney Creek Branch line at Nuttallburg.

- **Lumber Industry Historic Context**

Lumber Industry Development in the Park. Both before and after the Civil War many farm families in present-day West Virginia engaged in occasional timber cutting for sale to local sawmills. Almost every county had at least one sawmill, which usually combined with the gristmill located along the banks of the stream. Nevertheless, sawmills in West Virginia were comparatively few and small capacity. In 1869, there were only 348 sawmills in the state of which 150 were operated by steam and 185 by water. Some 20 to 30 steam-powered mills were located along

the Baltimore and Ohio Railroad in the northern part of the state about that time. By 1880 the number of mills in the state increased to 472. Except along the Baltimore and Ohio Railroad, the chief method of transportation was by rafting saw logs and crossties and floating lumber and other wood products in small barges on the larger streams.

With the introduction of the band saw and the extension of the railroads into remote areas of West Virginia, the timber industry entered a new phase in the state during the 1880s. The industry – previously confined to the Baltimore and Ohio Railroad and the tributaries of the Ohio River – now pushed into the mountainous areas of the interior. Lumber companies largely from New York, Pennsylvania, Michigan, and Minnesota bought most of the choice timberland of the state, usually at two to five dollars an acre. By the late 1880s and the 1890s the timber industry became one of the most important elements of the state's economy. It reached its peak in the state during the period between 1907 and 1917. By 1920 most of West Virginia's virgin timber was gone and the lumber industry began a precipitous decline.

As in the rest of the state the lumber industry in the New River Gorge region was one of boom and bust. After completion of the C&O Railroad in 1873 and the later construction of the branch lines in the 1890s, the New River Gorge area became the center of large timber operations. The region underwent tremendous change, not only as its coal resources were extracted but also as its relatively pristine timber lands were harvested during a lumber boom that extended primarily from the early 1880s to the late 1910s. Throughout this boom period large portions of the region's forest lands were felled, and lumber towns and camps bustling with activity grew up almost overnight when great sawmills were brought in. Flourishing for a time, these boom towns waned and disappeared as the timber was cut and the mills were moved to other locations, leaving only deserted buildings, rail lines, and mill foundations. The lumber industry contributed to the growth and development of railroading in the gorge and as such railroad centers and towns such as Thurmond, Hinton, Quinnimont, and Prince became significant sites associated with the shipment of lumber products to markets outside the gorge.

To house workers the lumber companies – such as the Meadow River Lumber Company, Babcock Coke and Coal Company, Blue Jay Lumber Company, and the Sewell Lumber Company – established towns and lumber camps in key locations around the gorge. The most significant timber operation in the gorge was located in the Sewell Mountain area.

Lumber Industry-Related Cultural Resources in the Park. Despite the historic impact of the lumber industry on the natural environment, its material legacy in the gorge is quite limited because of the transient nature of the industry and its extensive use of portable structures for logging operations. Surveys have found no examples of extant lumber industry structures in the park. Only a few ruins, broken

Table 3.8

New River Gorge National River
Lumber Industry Complex – Known and Potential Cultural Resource Types (Unrau 1996)

Primary Production Facilities
- tree stumps
- cutting machinery and equipment

Secondary Production Facilities
- sawmills
- buildings, structures, and objects associated with lumber production
- sawmill plant internal transportation facilities
- lumber yards

Transportation Facilities
- railroad tracks, sidings, yards, and support structures
- rolling stock
- roundhouses, stations/depots, repair shops, offices
- logging roads and trails and associated structures

Logging Camp Facilities
- dormitories/bunkhouses with kitchens and dining rooms
- superintendent's/foreman's residences
- office and ancillary outbuildings for management
- shops and outbuildings associated with maintenance and storage of equipment

Lumber Towns
- houses and ancillary outbuildings
- company stores
- community buildings
- private manufacturing/commercial buildings

Buildings in Incorporated Towns Associated with the Lumber Industry
- residences and ancillary outbuildings for:
  - lumber operators
  - lumber managers
  - loggers
  - railroad workers
  - railroad administrators
- private manufacturing/commercial buildings

foundations, and logging roads/trails remain. In the most isolated section of the gorge, many sites associated with lumbering operations have disappeared entirely and have virtually returned to their preindustrial state.

Three historic town sites with a lumbering past are of interest in or just outside the park, including Hamlet, Landisburg, and Meadow Creek (Marshall 1981). Hamlet represents an intact historic archeological site that appears to be eligible for listing on the National Register (Stahlgren et al. 2007). Meadow Creek, while still an active community in the gorge, has an extensive although still undocumented sawmill. Other mall undocumented sawmill ruins are located on the Gwinn property on Round Bottom across from McKendree Hospital and at the mouth of Camp Branch on the east side of the New River above Hamlet.

Table 3.9

New River Gorge National River
Euro-American Settlement / Agriculture –
Known and Potential Cultural Resource Types (Unrau 1996)

Farmsteads
- farm houses
- domestic outbuildings (privies, outhouses, detached or outkitchens, wells, laundry sheds, icehouses, semi-subterranean storage cellars)
- agricultural production facilities (springhouses, barns, granaries, sheds, stables, smokehouses)
- specialized activity areas (yards, vegetable gardens, orchards, fields and pastures, woodlots, and trash dumps with associated with fences or stone walls)

Agricultural Processing Facilities
- gristmills
- carding/woolen/fulling mills
- tanneries
- slaughterhouses
- limekilns
- distilleries

Transportation Facilities
- farm roads
- farm-related convevances

- **Euro-American Settlement / Agriculture Historic Context**

Euro-American Settlement / Agriculture Development in the Park. Following the Revolutionary War early settlers, mostly of English, German, and Scotch-Irish descent, moved into the rugged New River Gorge region. Early settlement patterns were informal and haphazard as most were squatters without legal title to the land. Typically pioneers would claim a site near a spring, deaden some trees, enclose a clearing, and plant some corn. A maximum of 400 acres could be taken under a "corn" right, but the settler could also be entitle to an adjoining 1,000 acres if he built a cabin and began farming the acreage.

One of the first recorded settlements within the park boundaries was Bowyers Ferry establihed in 1978 at the confluence of the New River and Manns Creek, which crosses east to west through Babcock State Park. The ferry was situated along the route of what later became the Old State Road that connected the Midland or Buffalo Trail to the east to the Paint Creek Trail further to the west. Another early settlement established within the park boundaries in 1798 across from modern-day Sandstone, was the Richmond Farm. The Richmond family obtained the land in compensation for their service during the Revolutionary War, and has farmed the land for six generations. Their original land grant extended up the New River to Richmond Bottom. In addition to their farming, the family operated a ferry and built a grist mill operation at Sandstone Falls, which Chief Justice Marshall encountered and mapped during his 1812 survey of the New, Greenbrier, and Jackson Rivers (Marshall 1981). Other settlers moved slowly into the rugged and isolated region, first taking up land where there was enough bottom land to establish widely scattered subsistence farmsteads. The valley floor settlements gradually filled with each generation. As newcomers moved in and families expanded, people moved farther up the hollows where valleys were narrow and fields small.

The road system in the gorge began as a network of narrow paths that followed natural contours. Gradually the roads improved, bringing a better means of

transportation for farmers' produce and livestock, mail delivery, trade goods, and improved comforts. Construction of new roads and turnpikes stimulated settlement of the region, which became more systematic around 1850. The increasing settlement resulted in the need for more effective local governments. Fayette County was established in 1831, Raleigh county in 1850, and Summers County in 1871. By the time of the Civil War the New River region had a well-developed agriculture-based economy – although it remained thinly settled. The agricultural economy continued to expand until the coming of industrialization during the 1870s.

Farmers of the New River gorge area were "mountaineers" who combined subsistence farming with timbering, hunting, and other forest-related occupations. The mountain homesteads – or family farms – established by these mountaineers in New River Gorge, as well as much of West Virginia, were the backbone of the pre-industrial 19th century Appalachian economy. Each mountain homestead functioned as a nearly self-contained economic unit, depending upon the land and the energy of a single family to provide food, clothing, shelter, and the other necessities of life. Unlike agrarian sections of the Midwest and non-mountain south that had moved steadily toward dependence on a single cash crop, mountain family farms remained essentially diversified and independent, producing primarily for their own use. During the mid-to-late 19th century, Appalachia contained a greater concentration of noncommercial family farms than any other area of the nation.

The typical mountain farm in Appalachia, including most of those in New River Gorge, during the pre-industrial period, consisted of a disparate mixture of bottomland and rugged mountainside. The average farm had about 2 percent of it land in cultivation, 20 percent in cleared pasture, and the remainder in woodland (Unrau 1996). Daily operation of the farm centered on the growing of all the vegetables and grain crops that the family used. Planting, cultivating, and harvesting were done by hand and with draft animals, since simple tools and traditional agricultural techniques proved most practical on the mountainous terrain. Mountain residents were largely self-sufficient and seldom received cash for their surplus products. Barter virtually became the sole means of exchange centered on the local merchant who exchanged retail commodities for surplus agricultural products and extended credit. Everything about the mountain homestead, including what has come to be referred to as its vernacular architectural style, reflected a society that had adapted to and harmonized with its surroundings by making effective use of local resources and by altering traditional cultural patterns to fit new physical conditions. Within this environment emerged a regional culture with strong attachments to the land and a profound sense of place. Today, although the "fingerprint" for these homesteads is hard to identify, examples are found above Sewell along the Old State Road and on Irish Mountain.

Completion of the C&O Railroad through the gorge in 1873 had a significant impact on the settlement and land use patterns in the region. Railroad construction

occurred in the narrow bottomlands and the coal resources opened up by railroad access were concentrated along the valleys and up the hollows. Mountain family farmers, some of whom had tilled the land for generations, were driven toward the ridges, thus exaggerating the pattern set by population pressures which had historically pushed them to increasingly marginal lands.

The railroads not only opened the gorge to development, but they also provided a transportation system that enabled the shipment of large quantities of agricultural products from the Midwest to the previously isolated region. The farm products from the Midwest were larger in quantity, more extensive in variety, and cheaper in cost compared with the produce of the small-family farms in the gorge and surrounding region. The local farmers simply could not compete with the incoming agricultural produce. In time the mountain farms willingly sold their land to land, mineral, and timber speculators, frequently with little notion of the true value of the resources on their properties, and were happy to receive whatever price the sale might bring.

In the end industrialization had its greatest effect on the transformation of the traditional way of mountain life. Not only did agriculture decline, but wild game was driven back into the hills, thus reducing subsistence hunting. Industrialization also sparked an increase in education that changed folkways and culture, and caused members of the once tightly knit clans to scatter. In addition the labor force brought in to work the mines, maintain the railroads, and harvest the lumber overcame the local mountain population.

By the late 19th and early 20th centuries agriculture had declined in relative importance as a significant component of the economy. During World War I and the postwar years, agriculture continued to be an important although secondary, component of the gorge's regional economy. Gradually part-time farming with agricultural income supplemented by other employment became the norm as the self-sustaining family farm became a relic of the past.

Euro-American Settlement / Agriculture-Related Cultural Resources in the Park. Most early farmsteads, agricultural processing industries, and transportation facilities along the New River and its tributaries in the gorge region have disappeared or become historic archeological sites. While a few remnant examples of late 19th and early 20th century historic farmsteads remain in the ridge and plateau areas of the gorge, visible traces of agricultural sites have become less well defined and most have been reclaimed at least in part by the forest and dense vegetation as agricultural activity has declined and farmsteads have been abandoned in recent decades.

Most of the park's surviving historic settlement/agriculture resources are located in the upper Gorge between Hinton and Sandstone Falls (see Figure 3.8). Trump-Lilly Farmstead is a rare surviving site representative of a late 19th and early 20th century

Coal Resources

SIGNIFICANCE	Non-Ruins	Ruins-Good	Ruins-Medium	Ruins - Poor
High	1	3	1	N/A
Medium	N/A	N/A	5	1
Low	3	1	8	25

Railroading Resources

SIGNIFICANCE	Non-Ruins	Ruins-Good	Ruins-Medium	Ruins - Poor
High	4	N/A	2	N/A
Medium	2	1	N/A	N/A
Low	1	N/A	N/A	2

Agriculture Resources

SIGNIFICANCE	Non-Ruins	Ruins-Good	Ruins-Medium	Ruins - Poor
High	4	N/A	N/A	N/A
Medium	2	N/A	1	2
Low	1	N/A	1	1

Other Historic Resources

SIGNIFICANCE	Non-Ruins	Ruins-Good	Ruins-Medium	Ruins - Poor
High	3	N/A	N/A	1
Medium	3	1	N/A	2
Low	7	N/A	N/A	18

PROSPERITY
BRADLEY
BECKLEY
PINEY VIEW
MOUNT HOPE
Bank of Glen Jean
FAYETTE COUNTY
BEAVER
STANAFORD
OAK HILL
DANIELS
FAYETTEVILLE
ANSTED
Army Camp
Terry
McCreery
Terry Junction
Stone House
Estuary School
Royal
Stretcher Neck Tunnel
Prince
L. Gwinn Farm
McKendree Hospital
Grandview
Harrah Homestead
Quinnimont
Meadow Fork
Newlyn
Riverview
South Boyd
Cadle Ridge
Southside Junction
Wee Win
Thurmond
Erskine
Dun Glen
Dimmock
Rush Run
Farm (Hazard Bragg)
Stone Cliff
Last Hope
Claremont
Beechwood
Alaska
Hope
Thayer
Hazard Bragg Farm
Dundee
Ephraim
Beury
Red Ash
Fire Creek
Brooklyn / Finlow P.O.
East Sewell
Pennbrook
Sewell
Sewell Top (Ledonia)
Bowyer's Ferry
Mincar
South Caperton
Caperton
Elverton
South Nuttall / Brown
Nuttalburg
Keeneys Creek
Keeneys Creek Branch Railroad
Whitney
Sunnyside
Wolf Creek Bridge and Dam
Ames / Elmo
Michigan
Carver
Newlyn
South Fayette
Fayette
Kaymoor
Hamlet
Railroad Piers
Glade / Krise P.O.
Glade Ferry
Export
Backus
Thomas School
Glendale School
Bennett Farm
Sawmill
Harrah School
Panther Branch Mill
Irish School
Babcock State Park
Babcock State Park Lake Number One Dam
Lumberman
St. Colman's Roman Catholic Church and Cemetery
Meadow Creek
Brandt Farm (Gwinn)
Phillips Farmstead
Bragg School
Westfall Farm
Sandstone Falls State Park
Trump-Lilly Farm
Big Branch Mill
Brooks Island
Richmond Mill
Richmond School
Hinton Historic District
Hinton Depot
Cochrane Farm
Camp Brookside
Richmond Farm
Richmond Ferry
Sandstone Elementary School
New Richmond
Beurytown
Secoma (Steinback)
HINTON
Vallandingham House
Richmond-Hamilton Farm
Claypool / Humoco P.O.
Tina
MEADOW BRIDGE
SUMMERS COUNTY

Map Notations

1. *Symbol shape indicates the type of cultural resource.*
2. *Symbol size indicates the extent to which the resource is intact (the larger the symbol the more intact the resource)*
3. *Symbol color indicates historic significance (the lighter the color the more significant the resource)*

- NPS land within National River Limits
- State Park Land within National River Limits
- Scenic Easement
- Private Land within National River Limits

Figure 3.8

HISTORIC RESOURCES

New River Gorge National River

WEST VIRGINIA

National Park Service US Department of the Interior

N

0 mi. 1.5 mi. 3 mi. 6 mi. 9 mi. 12 mi. 15 mi.

traditional self-sufficient/subsistence farm. However, only about 10 percent of the farm is now cleared and the agricultural system seen today is small by comparison to the agrarian activities once undertaken at the site. Significant farmstead resources include Richmond-Hamilton Farm, Vallandingham Farm, Cochran Farm, Phillips Farm, and Westfall Farm. Other sites are found on Irish Mountain and along the Old State Road above Sewell.

Because of the self-sufficient, subsistence nature of most agricultural activity in the gorge area, few if any, agricultural processing facilities that can be identified are extant in the park. A few examples include grist mills at Sandstone Falls, Panther Run, Camp Brookside, and Bowyers' Ferry. Other examples of such enterprises may survive, however, in nearby towns and service centers.

Historic farm road remnants are extant in some parts of the gorge, especially in the ridge and plateau areas away from industrial sites. The integrity of some road fragments, however, has been impacted by nearby coal, lumber, or railroad operations.

- **Recreation/State Parks Historic Context**

Recreation/State Park Development in the Park. When New River Gorge National River was established in 1978, three units of the West Virginia state park system were located within its authorized boundaries. The three parks – Babcock, Grandview, and Sandstone Falls – formed the basis of established public recreation facilities and opportunities in the new park. Babcock State Park and Grandview State Parks were established as units of the initial West Virginia state park system and developed using New Deal emergency funding and Civilian Conservation Corps (CCC) enrollees for conservation and were among initial group of state parks developed during the 1930s that were dedicated to recreation, preservation, and conservation of West Virginia's natural resources and scenic beauty. The two concepts of recreational development and conservation of resources that provided the rationale for establishment of the state parks at Grandview and Babcock foreshadowed the underlying purposes for creating New River Gorge National River as a unit of the National Park Service.

In the early 20th century a growing nationwide conservation and state parks movement that contributed to development of the recreational potential of West Virginia's natural resources and establishment of an extensive state park system. As the nation's natural resources were being exploited to meet the demands of an increasingly urbanized and industrialized society during the late 19th and 20th centuries, the conservation movement began to protect and develop the country's physical resources in a more orderly and rational manner. During the 1920s a state parks movement gathered momentum, resulting in establishment of numerous state park systems throughout the nation. In 1925 the West Virginia State Forest, Park and Conservation Commission recommended that lands having outstanding scenic

Table 3.10

New River Gorge National River
Recreation/State Parks – Known and Potential Cultural Resource Types (Unrau 1996)

Primary Outdoor Recreation Activity Facilities
- bathhouses, boathouses
- pavilions (outdoor picnic and function shelters)
- overlooks, lookouts
- comfort stations
- group social/educational meeting structures
- amphitheatres
- specialized activity areas (children's playground/play equipment areas, picnic areas, tennis courts, badminton courts, horseshoe pits, shuffleboard courts)

Secondary Recreational Support Facilities
- park administrative/management-related structures (staff offices, personnel residences, visitor centers, contact facilities)
- park maintenance structures (offices, shops, garages, warehouses)
- concessions operations structures (restaurants, snack shops, gift and souvenir shops)

Overnight Visitor Accommodations
- cabins
- lodges

Private Retreat Development
- company retreats
- church camps
- special youth camps

Engineering Structures and Landscape Features
- infrastructure buildings
- dams (functional and decorative)
- bridges
- stone retaining walls, culverts, drainage ditches, curbs, spring basins, walkways, hearths, steps, water fountains, trails)
- directional signs or markers, benches
- man-made lakes, streams, waterfalls, pools
- fencing
- machinery

Transportation Facilities
- roads and roadway structures/features (bridges, culverts, drains, turnouts)
- vehicle facilities (parking lots)

and natural qualities should be acquired by the state and administered as units of a state parks system. In 1933 West Virginia established a state parks division. Using funds and personnel from the CCC and from other New Deal public works, as well as funds appropriate by the state legislature, the new state parks division in 1934 acquired some 17,085 acres for park lands, including Babcock and Hawks Nest State Parks. Five years later 52 acres were acquired in Raleigh County for Grandview State Park for development as a day-use park.

CCC camps were established in or near the new state parks. Planning, design, and development of the parks commenced under the direction of the National Park Service and the US Forest Service. Two CCC camps were established at Babcock, which also provided personnel for the development of Hawks Nest State Park. Development of these areas was guided by a "state park concept" formulated by the Conservation Commission. This concept guided development of West Virginia state parks until the late 20th century. Park development was directed toward development of convenience and accessibility selected portions of the parks, with attention to minimizing impacts on the natural environment. Where possible large areas were left untouched to ensure propagation of wildlife and protect natural conditions. Construction of family vacation cabins in natural settings was given high priority in the early years, and the popularity of the cabins soon evolved into the need for inns, lodges, restaurants, trading posts, and other visitor-related services.

Babcock State Park opened to the public in 1937 and Grandview State Park opened in 1941. Another former state park at Sandstone Falls was transferred to NPS during the 1980s. The CCC camps at Camp Washington Carver adjacent to Babcock State Park and at the current 4-H Camp near Little Beaver State Park several miles south of Grandview continued work at the state parks until 1942, when they were closed due to US entry into World War II. Both parks became popular and well-known areas in the state park's system and Grandview became one of the most heavily visited day-use parks in the state.

Recreation/State Park-Related Cultural Resources in the Park. Babcock is one of the finest West Virginia state parks. It represents the pinnacle of New Deal-Era CCC constructed state parks. It retains many of the original design elements, such as the entrance station, landscaping, stone work, parking lots, and overlooks. Its cultural landscape, however, has not been documented to determine whether it warrants listing on the National Register.

Grandview State Park lacks much of the naturalistic character exhibited by many other West Virginia New Deal-era CCC parks. Yet there are many CCC design element present, although many of its extant resources such as the picnic shelters date to the 1950s period of renovation and development.

3.3.3 Historic Archeological Resources

- **Historic Archeological Resources**

Many of the park's cultural resources are the ruins of the New River communities – mostly "ghost towns" today – where the thousands of miners and their families worked and lived in the gorge during its industrial heyday from 1880 to 1930. These communities and related industrial sites now abandoned and generally in ruins, are largely archeological sites. Because they post-date the arrival of Europeans in the New World and are supported by documentary records, they are historic archeological sites. With few exceptions these historic archeological resources are complexes or localities – rather than individual sites – where clusters of domestic and industrial sites related to mining, railroading, lumbering, and farming can be found (Marshall 1981; Unrau 1996; Workman et al. 2005; Stahlgren et al. 2007).

The historic significance of the "ghost towns" of New River Gorge differs based upon the number of archeological resources present that represent the full gamut of essential community functions. For example, a New River coal-mining community with archeological remains of dwelling houses, a company store, a school, church and cemetery, recreational facilities, along with the full array of primary and secondary production facilities, including a mine opening, tipple or preparation plant, headhouse, include or conveyor, shops, railroad sidings, and coke ovens, possesses a high level of integrity (Unrau 1996).

NPS has completed preliminary inventories and field studies for many of the park's historic site complexes. The most comprehensive is the recently completed *Historic Resource Study* (Workman et al. 2005) that included a literature review, additional research, and field reconnaissance of 34 site complexes in the park. Findings from this study concluded that all of the sites likely contain historic archeological resources, although they vary dramatically in terms of the potential significance of the resources. Three (3) site complexes were found to be potentially nationally significant, possessing a high level of integrity, and intrinsically important to the mission of the park: Nuttallburg, Thurmond, and Babcock State Park (Workman et al. 2005). Twenty-four (24) sites were found to be potentially significant on the regional or local level and/or to lack high integrity; they may be intrinsically important to the mission of the park. Seven (7) sites were found to be of lower potential significance and integrity and are not important to the park's mission. Many other smaller sites with potential for intact archeological resources occur throughout the park – including community sites as well as individual sites. Sites have been documented only through limited archival research and field survey.

TABLE 3.11 Sites with Known or Suspected Historic Archeological Resource Potential

			National Register Status				
Name	**Ownership**	**Condition**	Listed	Eligible	Potentially Eligible	Not Determined	Determined Not Eligible
Coal Industry-Related Resources							
Alaska[1]	NPS/private	poor				■	
Ames/Elmo	NPS/private	medium				■	
Beechwood	private	poor				■	
Beury[1]	NPS	medium				■	
Brooklyn/Finlow P.O.	NPS	medium				■	
Cadle Ridge	NPS	poor				■	
Caperton[1]	NPS	good				■	
Carver	NPS	poor				■	
Claremont[1]	NPS	poor				■	
Dimmock	NPS	poor				■	
East Sewell	NPS	poor				■	
Elverton	NPS	medium				■	
Ephraim-Dundee[1]	NPS	medium				■	
Erskine	private	poor				■	
Estuary School	NPS	poor				■	
Export	NPS	poor				■	
Fire Creek[1]	NPS	medium				■	
Hope	NPS	poor				■	
Kaymoor[1]	NPS	good	■				
Kenney Creek	NPS	poor				■	
Last Hope	NPS	poor				■	
Meadow Fork	NPS	poor				■	
McKendree[1]	NPS	medium			■		
Michigan[1]	NPS	poor				■	
Mincar	NPS	poor				■	
Newlyn (north end)	NPS	poor				■	
Newlyn (Dun Loop Cr.)	NPS	poor				■	
Nuttallburg[1]	NPS	good	■				
Pennbrook	NPS	medium				■	
Quinnimont Furnace[1]	NPS	medium			■		
Red Ash[1]	NPS	medium				■	
Royal[1]	NPS	medium				■	
Rush Run[1]	NPS	medium				■	
Sewell[1]	NPS/private	good				■	
Sewell Top (Ledonia)	private	poor				■	
South Boyd	private	poor				■	
South Caperton	NPS	medium				■	

TABLE 3.11 Sites with Known or Suspected Historic Archeological Resource Potential

Name	Ownership	Condition	National Register Status				
			Listed	Eligible	Potentially Eligible	Not Determined	Determined Not Eligible
South Nuttall/Browntown	NPS	poor				■	
Stone Cliff[1]	NPS	medium				■	
Sunnyside	NPS	poor				■	
Terry Junction	NPS/private	poor				■	
Thayer[1]	NPS/private	variable				■	
Tina	private	poor				■	
Wee	NPS	medium				■	
Whitney	private	poor				■	
Railroad Industry-Related Resources							
Dun Glen Hotel Site	NPS	good	■				
Fayette/South Fayette[1]	NPS	poor				■	
Hinton Historic District[1]	private	good	■				
Kenney Creek Br Right[1]	NPS/private	good		■			
Prince[1]	NPS/private	good					
Quinnimont[1]	NPS/private	good				■	
Riverview[1]	NPS	poor				■	
Southside Junction	NPS	medium				■	
Thurmond[1]	NPS/private	good				■	
Lumber Industry-Related Resources							
Hamlet[1]	NPS	medium			■		
Hughart House	state	good	■				
Landisburg[1]	state	poor				■	
Meadow Creek[1]	NPS/private	variable				■	
Euro-American Settlement/Agriculture-Related Resources							
Bennett Farm	NPS	poor				■	
Bowyer's Ferry[1]	NPS/private	poor				■	
Brandt Farm	private	poor				■	
Cochran Farm	NPS	good				■	
Gwynn Farm	private	medium				■	
Hazard Bragg Farm	NPS	medium				■	
McCreery/Batoff Mt. [1]	NPS	poor				■	
New Richmond[1]	private	poor				■	
Phillips Farmstead	NPS	fair				■	
Richmond Farm	private	good		■			
Richmond-Hamilton Farm	NPS	fair		■			
Trump-Lilly Farm[1]	NPS	fair/good	■				
Vallandingham Farm	NPS	good				■	
Westfall Farm	private	poor				■	

TABLE 3.11 Sites with Known or Suspected Historic Archeological Resource Potential

			National Register Status				
Name	**Ownership**	**Condition**	Listed	Eligible	Potentially Eligible	Not Determined	Determined Not Eligible
State Park/Recreation-Related Resources							
Army Camp[1]	NPS	poor				■	
Babcock State Park[1]	state	good			■		
Camp Brookside[1]	NPS	good			■		
Grandview State Park[1]	NPS	good			■		
Other Resources							
Brooks Island	NPS	poor				■	
Glade/Krise P.O.	NPS/private	medium				■	
Glade Ferry	NPS/private	poor				■	
Glendale School	private	poor				■	
Harrah School	private	poor				■	
Irish School	NPS	poor				■	
Lumberman	private	poor				■	
Mill	NPS	poor				■	
Panther Branch Mill	NPS	poor				■	
Richmond Ferry	private	poor				■	
Richmond Mill	NPS	poor				■	
Sandstone Elem. School	NPS	poor				■	
Secoma	NPS	poor				■	
Stone House	private	poor				■	
Thomas School	private	poor				■	
Wolf Creek Bridge/Dam	NPS	poor				■	

[1] *Site complexes assessed in Historic Resources Study (Workman et al. 2005).*

[2] *Scores assigned by the Institute for the History of Technology and Industrial Archeology (IHTTIA) at West Virginia (Workman et al. 2005):*
1 – *sites that are nationally significant and intrinsically important to the mission of the park; these sites are potentially eligible for or nominated to the National Register of Historic Places*
2 – *sites that are significant on a regional or local level and/or lack the highest level of integrity; these sites may also be intrinsically important and qualify for listing on the National Register depending on their scarcity, accessibility, and potential to convey a story related to the park's historic contexts*
3 – *sites that are of lower significance and integrity and are not intrinsically important to the park's mission; these sites are not potentially eligible for the National Register*

[3] *Significance ranks assessed by NPS cultural resource specialists based on findings from other archival investigations, research, and field surveys.*

[4] *IHTIA score not assigned; further research required.*

- **Historic Archeological Resource Management Concerns**

Gaps in Knowledge. Additional research is needed to document the archeological resources of all the historic site complexes including further archival research and archeological investigations are needed to discern the full extent of sites, site field surveys, and mapping.

National Register Nominations. As significant historic archeological sites are identified in the park, they should be nominated for listing in the National Register of Historic Places.

3.3.4 Cultural Landscapes

- **Cultural Landscapes**

The park's cultural landscapes are the geographic areas – including both cultural and natural resources – that are associated with the historic events and activities in the park's past and/or with the people who have lived and worked in the park and that are integral to its significance. A cultural landscape inventory of historic properties currently owned by the NPS identified 13 cultural landscapes representative of four of the park's five historic contexts (NPS 2005a). Of these 13 sites ten retain the integrity needed to convey their significance as cultural landscapes:

- **Kaymoor Mine and Kaymoor**, an industrial site representative of the New River coal field industrial complex and related company town in operation from 1899 through 1962; a few industrial structures still standing (state significant; listed on the National Register as an historic district)
- **Nuttallburg Mining Complex and Nuttallburg**, one of the most complete early 20th century coal related industrial sites in the United States; remaining standing structures include the Nuttall Mine headhouse, conveyor, tipple, and power house (nationally significant; listed on the National Register as an historic district)
- **Thurmond**, a railroad town in the heart of New River Gorge and the primary railroad center for the New River Gorge coal field during its peak production period the late 1890s through the 1920s (state significant; portions of town site listed on the National Register as an historic district; cultural landscapes determined eligible for the National Register)
- **Cochran Farm**, ca. 1910, a former farm representative of pre-industrial subsistence farming, including a farm lane and remains of two sheds
- **Harrah Homestead**, ca. 1910, a former homestead representative of a regional housing type, including a house and outbuildings (locally significant)

Table 3.12

New River Gorge National River
Cultural Landscapes
(on property currently owned by NPS)
(NPS 2005a) –

Coal Industry-Related Landscapes
- Kaymoor Mine and Kaymoor
- Nuttallburg Mining Complex and Nuttallburg*

Railroad Industry-Related Landscapes
- Thurmond*

Euro-American Settlement/Agriculture Landscapes
- Cochran Farm
- Harrah Homestead*
- Richmond-Hamilton Farm*
- Trump-Lilly Farm*
- Vallandingham House*

State Park/Recreation Landscapes
- Camp Brookside*
- Grandview State Park*

* *Sites for which a cultural landscape inventory or a cultural landscape report is available*

- **Richmond-Hamilton Farm**, ca. 1902, a former farm representative of subsistence farming, including largely unaltered farmhouse and outbuildings associated with the early Richmond family that originally settled the area in the 18th century (regionally significant; determined eligible for the National Register)
- **Trump-Lilly Farm**, ca. 1880s, a former farm, representative of pre-industrial subsistence farming, including largely unaltered farmhouse and outbuildings originally owned by the 3rd generation of the Richmond family that originally settled the area in the 18th century (listed on the National Register)
- **Vallandingham House**, ca. 1870, a former farm representative of pre-industrial subsistence farming, including a log cabin and outbuildings (locally significant; house determined not eligible for the National Register by the WV State Historic Preservation Officer)
- **Camp Brookside**, ca. 1945, including 30 acres on a river terrace above the New River near Hinton, developed in the 1940s by the Union Carbide Company as one of seven summer camps for children of its employees (state significant; determined potentially eligible for the National Register by the WV State Historic Preservation Officer)
- **Grandview**, ca. 1939, previously a West Virginia state park developed by the NPS using Civilian Conservation Corps labor, including typical design features from that era (likely state significant; potentially eligible for the National Register)

- **Cultural Landscape Management Concerns**
  - **Gaps in Knowledge**. Additional research is needed to document the cultural landscapes.
  - **National Register Nominations**. As significant cultural landscapes are identified in the park, they should be nominated for listing in the National Register of Historic Places.
  - **Invasive Vegetation**. Many of the park's cultural landscapes have been affected by the spread of invasive noxious weeds. These plants – such as kudzu – have caused detrimental harm to the cultural resources on these landscapes and if let unmanaged have the potential to completely obscure or irreparably harm these resources. Limited staffing and funds do not allow for the consistent routine vegetative maintenance that is required at each of these sites.

- **Theft and Vandalism**. Because many sites are remote, vandalism and theft have resulted in their degradation. These potential impacts are likely to continue into the future.

- **Erosion**. Minor to extensive damage may occur across these cultural landscapes because of natural processes and/or human altered conditions that increase erosion potential. Evaluation of erosion issues and necessary corrective action plans are needed.

3.3.5 Historic Structures

- **Historic Structures**

Buildings and structures found in the park are a reflection of its industrial, cultural, and building arts heritage, as well as the rugged terrain of the gorge. Notable historic structures include industrial structures related to coal mining and railroading and the communities that housed the people who worked the mines, cut the timber, and operated the railroad. Notable structures also include the farmsteads and community buildings built in the gorge by settlers and their descendents prior to and during the period of industrialization.

Structures on the park's List of Classified Structures (NPS 2006b) all evidence local and state significance, except for one – the Nuttallburg Coal Mining Complex and Town Historic District – which has been determined by the West Virginia State Historic Preservation Officer and the Keeper of the National Register to be of national significance. Further documentation could, however, reveal that some additional sites have national significance.

Four historic districts wholly or partially within the park are listed on the National Register of Historic Places:

- **Hinton Historic District**, located in downtown Hinton, representative of the major building booms of the 1880s to 1920s, composed of commercial and residential buildings with minimum contemporary architecture (only the Hinton Depot is located within the park boundary)

- **Thurmond Historic District**, a railroad town in the heart of New River Gorge and the primary railroad center for the New River Gorge coal field during its peak production period the late 1890s through the 1920s; significant for its association with the C&O Railroad and the coal mining industry and for its railroad architecture, vernacular worker housing, and simple commercial buildings typical of a West Virginia boomtown during the 1884 to 1950 industrial period

- **Kaymoor Historic District**, a significant industrial site representative of the New River coal field industrial complex and related company town in

TABLE 3.13. Historic Structures, Historic Districts, and Site Complexes with Historic Structures

			National Register Status			
Name	Ownership	Condition	Eligible	Potentially Eligible	Not Determined	Determined Not Eligible
Coal Industry-Related						
Bank of Glen Jean	NPS	good				
Beurytown[1]	NPS/private	fair			■	
Glen Jean Historic Dist.	NPS/private	fair				
Kaymoor Historic Dist. [1]	NPS	good				
Little Rock Assembly Ch.	NPS	good				
Nuttallburg Historic Dist. [1]	NPS	good				
Terry[1]	NPS/private	poor			■	
Thayer[1]	NPS/private	variable			■	
Railroad Industry-Related						
Beury Monument	private	good		■		
Hinton Depot	private	good				
Hinton Historic District[1]	private	good				
Kenney Creek Br. Line[1]	NPS/private	good	■			
Prince[1]	NPS/private	good			■	
Prince Depot	private	good		■		
Prince Brothers Store	NPS	good				
Quinnimont[1]	NPS/Private	good			■	
Stretcher Neck Tunnel	private	good			■	
Thurmond Historic Dist. [1]	NPS/private	variable				
Thurmond Commercial Row NPS		fair				
Thurmond Depot	NPS	good				
Thurmond 1st Baptist Ch.	NPS	good		■		
Lumber Industry-Related						
Meadow Creek[1]	NPS/private	variable			■	
Euro American and Agriculture-Related						
Cochran Farm	NPS	good			■	
New Richmond[1]	private	poor			■	
Phillips Farmstead	NPS	fair			■	
Richmond Farm	private	good			■	
Richmond-Hamilton Farm	NPS	fair	■			
Trump-Lilly Farm[1]	NPS	fair/good				
Vallandingham Farm	NPS	good				■
Westfall Farm	private	poor			■	
State Park/Recreation-Related						
Babcock State Park[1]	state	good		■		
Camp Brookside[1]	NPS	good		■		
Grandview[1]	NPS	good		■		

TABLE 3.13. Historic Structures, Historic Districts, and Site Complexes with Historic Structures

Name	Ownership	Condition	National Register Status: Eligible	Potentially Eligible	Not Determined	Determined Not Eligible
Other-Related						
Backus	private	unknown			■	
Berry Cabin	private	good	■			
Bragg School	private	good			■	
Claypool/Humoco P.O.	private	fair	■			
Richmond School	private	good	■			
River Road Stone Wall	private	good	■			
St. Colman's RC Church and Cemetery	private	good				

[1] *Site complexes assessed in Historic Resources Study (Workman et al. 2005).*

Scores assigned by the Institute for the History of Technology and Industrial Archeology (IHTTIA) at West Virginia (Workman et al. 2005):

1 – *sites that are nationally significant and intrinsically important to the mission of the park; these sites are potentially eligible for or nominated to the National Register of Historic Places*

2 – *sites that are significant on a regional or local level and/or lack the highest level of integrity; these sites may also be intrinsically important and qualify for listing on the National Register depending on their scarcity, accessibility, and potential to convey a story related to the park's historic contexts*

3 – *sites that are of lower significance and integrity and are not intrinsically important to the park's mission; these sites are not potentially eligible for the National Register*

[3] *Significance ranks assessed by NPS cultural resource specialists based on findings from other archival investigations, research, and field surveys.*

[4] *Historic structure listed as contributing to the historic district.*

- operation from 1899 through 1962; a few industrial structures still standing

- **Nuttallburg Coal Mining Complex and Town Historic District**, one of the most complete early 20th century coal related industrial sites in the United State; owned by Henry Ford during the 1920s, the complex is nationally significant for its association with Ford's revolutionary experiment to streamline and vertically integrate all levels of industrial production; largely unaltered since that time; remaining standing structures include the Nuttall Mine headhouse, conveyor, tipple, and power house

Individual properties listed on or determined eligible for the National Register of Historic Places and the more significant individual structures within the historic districts include:

- **St. Colman's Roman Catholic Church**, ca. 1877, the only visible remains of the once thriving Irish community in Raleigh County; now owned by the Roman Catholic Diocese of Wheeling-Charleston

Table 3.14

New River Gorge National River
Settlement Chronology –

Prior to 1670
Native American Habitation

The Fort Ancient peoples and later the Shawnee people and other Native Americans inhabited the gorge

1670 – 1873
Exploration and Early Settlement

Scotch-Irish, German, and English settlers homesteaded the gorge; some African-Americans brought in as slaves

Mid 18th to mid 19th Century
Industrialization and Prosperity

Eastern and southern European and African-American immigrants were brought in to work on the railroads and in the timber and mining industries

Mid to Late 20th Century
Post Industrial Recession

Outmigration of all groups from gorge communities occurred as the timber and mining industries declined and railroad technology changed; many African-American and immigrant families moved to neighboring communities

Early 21st Century
Contemporary Settlement

Descendants of African-American and immigrant families continue to reside in the gorge's communities near the gorge and throughout southern West Virginia

- **Prince Brothers General Store (Berry Store)**, ca. 1900, a frame commercial building that housed a grocery and dry goods business, and served as the local post office for decades until its closing in 1984; once of the last surviving commercial buildings in the gorge from the New River coal industrial period; now owned by the NPS and vacant

- **Hinton Depot**, ca. 1906, former C&O depot; now owned by the city of Hinton; two-story brick structure; in active operation by AMTRAK

- **Thurmond Depot**, ca. 1905, former C&O Railroad depot and offices of the C&O Railroad; two-story frame structure; now owned by the NPS, restored and used as a park visitor center and museum; also serves as an AMTRAK "flagstop"

- **Thurmond Commercial Row**, including the two remaining buildings in Thurmond's commercial "main street"; composed of the three-story brick Mankin-Cox Building (ca. 1904) and the four-story brink National Bank of Thurmond (ca. 1917); now owned by the NPS and vacant

- **Glen Jean Bank**, ca. 1909 and 1917, an excellent example of a period small town bank, was the center of financial activity for development of the town of Glen Jean and other nearby communities; architecturally one of the most significant structures in the Glen Jean Historic District; now owned by the NPS and used for park offices

Many other structures are found throughout the park that are significant for their association with the events and lives of people who have lived in the gorge, for their ability to inform our understanding of the park's history, or that are excellent examples of a particular type, period, or method of construction (see Table 3.13).

- **Historic Structures Management Concerns**

Structure Stabilization. Historic structures are threatened by continued deterioration and loss due to weathering, decay, vandalism, salvage, and the destructive effects of rapid and dense vegetation growth. Management actions are needed as appropriate to protect remaining historic structures that are found as a result of further research to be significant, to possess a high level of integrity, and to be intrinsically important to the park's mission.

Remediation of Lead and Asbestos Contamination. Some historic structures – such as commercial row at Thurmond – have lead and asbestos contamination that must be remediated as part of their stabilization and before they can be reused.

3.3.6 Ethnographic Resources

- **The Park's Traditionally Associated People and Groups**[1]

The human use and settlement of the New River region is characterized by waves of settlement and a unique intermingling of distinct ethnic groups. The sequence can be summarized generally: first Native Americans inhabited the area; then Scotch-Irish, German, and English settlers homesteaded the region in the 18th century, and then in the late 19th and early 20th centuries, eastern and southern European and African-American immigrants were brought in to work on the railroads and in the timber and mining industries. Mine operators strategically hired different ethnic groups and segregated mining communities by race and ethnicity to prevent union organization. Many of the immigrant and settlers' families and descendents established southern West Virginia as their home and continue to reside in communities adjacent to the park. These groups intermingled over time and established unique relationships with the landscape, which allowed them to survive despite the hardships of the mining industry and the fluctuations in paying jobs. Today, they define themselves in part by their relationship with the New River area, its resources they use, and the cemeteries and home places of their ancestors that they visit.

Euro-American Frontier Family Descendents. These families originally moved into the area in the 18th century and their descendents continue to live in communities just outside the gorge. They became intimately familiar with the natural resources and cycles because their livelihood depended upon such awareness. They passed this knowledge on to their descendants through oral tradition, demonstration, and active teaching. Such traditional ecological knowledge includes where, when, and how to sustainably harvest and use ginseng, hellgrammites, morel mushrooms, ramps, different species of fish, and many other wild herbs, roots, animals, and plants. Today, these people highly value the original 'home place' where their ancestors established themselves in the region. Family members who have moved away return several times each year for reunions where they reunite with their kinship network and celebrate their connection to the New River landscape.

African American Individuals and Groups. African-Americans were first brought into the region prior to the Civil War, but great number came later to work in the railroads and in the mines. African Americans were disproportionately used on dangerous jobs and many died as a result. Segregation in the company towns led to creation of tight-knit African-American mining communities, schools, and churches. During the early 20th century, 48 communities in Fayette County had all-black schools. These families supplemented their incomes with locally gathered and cultivated plants. They eventually collaborated with other ethnic groups to establish unions. They became attached to the New River landscape and stayed after the

[1] *Text excerpted from Campbell 2006.*

mining declined. Although West Virginia as a state has a three percent black population, the black population of Fayette and Raleigh Counties is approximately 25 percent of the total population. Sizeable black communities are reported to have resided in Quinnimont, Kaymoor, Elverton, Ames, Nuttallburg, Fire Creek, Winona, Edmond, Claremont, Thurmond, and Hinton.

Descendents of Immigrant Miners. Beginning around 1890, foreign immigrants began to arrive in the coal fields. They were from many distant locales, but primarily from southern and eastern Europe. Many were recruited 'right off the boat' to southern West Virginia mining towns and made their permanent homes in the area. They were moved from mining town to mining town as mines 'worked out,' or relocated in search of better living conditions. Upon the closure of the major mines, many residents left the area but others stayed on because of their attachment to the place. The descendents of these immigrants live in neighboring communities and may place cultural significance on industrial ruins, cemeteries, or communities where they lived in the park. Local resource use was an important adaptive strategy in their continuity through difficult economic times.

Federally Recognized Shawnee Tribes. The Shawnee people traditionally utilized the New River Gorge region as a residence area where groups camped, hunted, and fished. They are recognized by most experts as at least one descendent of the Fort Ancient peoples who occupied the region prior to European settlement. Contemporary Shawnee tribes potentially consider the New River Gorge region of cultural and traditional significance to their tribe because of their potential affiliation with the Fort Ancient peoples and because of the historic significance of their battles (and raids) with the British and American troops and European settlers in the area. The Eastern Shawnee currently list West Virginia as part of their traditional homeland on their tribal website, which may indicate a potential interest in the resources of New River Gorge.

- **Traditional Ethnographic Cultural and Natural Resources**

Comprehensive studies have not been completed in the park area that identify its specific traditional ethnographic cultural and natural resources. However, the recently completed *Ethnographic Overview and Assessment of the New River Gorge National River* (Hufford et al. 2006) concluded that there are places within the park boundaries that have great significance for the park's traditionally associated people and groups (as previously described). The ethnographic resource identified as vital is the landscape of the mixed mesophytic forest and associated forests in association with the collective memory – the stories – that animate and are animated by the landscape (Hufford et al. 2006). It is possible that this landscape today forms one of the most intact examples of a community forest and watershed to be found in North America (Hufford et al. 2006). Further research and study will identify the connections between the park's traditionally associated people and

groups and the park's specific cultural and natural resources found within the park's mixed mesophytic watershed.

- **Ethnographic Resource Management Concerns**

Gaps in Knowledge. Better identification of ethnographic resources is needed for effective management of park natural and cultural resources. There is currently no specific documentation of the myriad park resources that traditionally associated people and groups currently use and used historically. Oral histories need to be collected more intensely and systematically. Traditional use studies are needed to analyze traditional resource use and management regimes regarding:

- subsistence practices by the traditional Euro-American population who continues to harvest natural resources for subsistence purposes
- historical and contemporary associations that local African-American communities, families, and individuals have with park structures, landscapes, and other historic and cultural resources

The data compiled will inform interpretive programs, help determine the suitability different forms of protection, and enable the NPS to assess the effects of management decision on traditional user.

3.4 Scenic Resources

3.4.1 Character of Scenic Resources

The topography of New River Gorge, the waters that shaped it, the forest that blankets it, and the remnants of past human settlement hidden within it, combine to create a scenic landscape that is New River Gorge National River. Collectively these are the park's scenic resources that provide the visual context for the park and that define the dramatic and extraordinary views that visitors experience. Briefly summarized these scenic resources include:

- the **New River** – flowing for 53-miles through the park, at times wide and tranquil and frequently violent and turbulent
- the **New River Gorge** – cut by the New River through the rocks of the Appalachian Plateau, wide and pastoral in the south while in the north narrow and treacherous reaching a depth of almost 1,000 feet with frequent near vertical cliff walls
- the expanse of **unfragmented forest** – stretching out through the gorge and on the Allegheny Plateau, composed of a near continuous span of mixed deciduous forest with very few roads, trails, utility corridors, or modern developed land uses
- the **scenic cultural landscapes** – the places scattered throughout the gorge where people once lived and worked, providing a glimpse into the park's early settlement years of the late 18th and early 19th centuries and

New River Gorge National River
Park Significance Statement 5

New River Gorge National River has diverse and extraordinary scenic resources and views accessible to visitors from the river, rocky overlooks, trails, and rural roads throughout the park.

Fundamental Resources and Values

- panoramic views of the New River, its gorge, and the other landforms shaped by the New River as it cuts through the Appalachian Plateau
- cultural landscapes that reflect settlement and industry influenced by a rugged and isolated setting

Other Important Resources and Values

- natural visibility and lightscape, both in daytime and at night

the industrial era of the late 19th and early 20th centuries when coal mining, lumbering, and railroading dominated the gorge

- the **tributary streams of the New River** – including mountain streams flowing through deeply incised rocky channels with numerous picturesque waterfalls and rock formations

In addition to these scenic resources the New River Bridge itself – owned and maintained by the WV Division of Highways – is a major scenic attraction in the park that most visitors seek to view by either driving across it, by passing beneath it, or by viewing it from an overlook.

3.4.2 Views of Scenic Resources

Visitors experience dramatic and extraordinary views of scenic resources from three primary types of vantage points within the park:

- from the river or river banks while paddling or fishing the New River
- from trails and roads while exploring the park by foot, bicycle, horse, or vehicle
- from overlooks and points of interest

Computer modeling of viewsheds reveals the areas within and near the park that are visible from each of these vantage points (Figure 3.9). This analysis shows that from many locations within the park the experience that visitors have is defined by scenic resources in and around the gorge that are both within the current park boundary as well as outside the current park boundary. In many locations visitors have expansive views of the park and the adjoining Appalachian Plateau extending well beyond the park.

Views from the River. Most of the park's rugged topography and forested lands is visible from the river and along its banks when paddling, fishing, or sightseeing. Boaters generally see the expanse of the forested gorge walls, although they cannot see up tributary valleys such as the Glade Creek, Dunloup Creek, or Arbuckle Creek valleys. From the river they typically are unable to view scenic resources above the rim or on the plateau.

In general views from the river encompass scenic resources within the park boundary, except in the upper gorge where boaters looking to river right can see well beyond the park boundary as they float from Hinton to Sandstone.

Views from Trails and Roads. From trails and roads visitors generally experience enclosed views of the forest, interspersed with more expansive views where breaks occur in the forest cover. Visitors also experience views of the park's cultural landscapes where they come upon them while hiking, biking, or riding trails or when driving park roads. Glade Creek Road in the park is designated by the state as a scenic "backway" significant for visual setting.

KEY

NERI Boundary

Vantage Points

New River

Trails and Roads

Overlooks and Points of Interest

Viewsheds

Areas within View from the River

Areas within View from Trails and Roads (includes some but not all of the areas within view from the river)

Areas within View from Overlooks and Points (includes some but not all of the areas within view from the river and within view from trails and roads)

BECKLEY
PINEY VIEW
MOUNT HOPE
STANAFORD
OAK HILL
FAYETTEVILLE
ANSTED
McCreery
Terry
Grandview
Prince
McKendree
Quinnimont
Thayer
Glade Creek
Stone Cliff
Dun Glen
Thurmond
Fayette Station
Kaymoor
Nuttallburg
Cunard
Bragg
Backus
Meadow Creek
Danese
New Richmond
HINTON
MEADOW BRIDGE

N

0 mi. 1.5 mi. 3 mi. 6 mi. 9 mi. 12 mi. 15 mi.

Figure 3.9

VANTAGE POINTS AND VIEWSHEDS

New River Gorge National River

WEST VIRGINIA

National Park Service US Department of the Interior

Views from Overlooks and Points of Interest. From overlooks and points of interest, visitors experience broad views of the river, the gorge, and the forest. From many overlooks the views extend well beyond the park boundaries (Figure 3.9).

- **Scenic Resource Management Concerns**

Several management concerns relate to the protection of scenic resources and views of those resources at the park:

- some local communities have recently approved major new private development within the park boundary and adjoining (but outside of) the park boundary that will adversely impact the park's scenic resources and the views that visitors experience from vantage points on the river, from roads and trails, and from overlooks and points of interest; development pressure is expected to grow in the three-county area around the park, increasing the likelihood that additional development projects will be proposed with further potential for adverse impacts on the park's scenic resources and scenic views
- new bridge construction is proposed by WV DOH in the next few years that has the potential to adversely impact the scenic character of the river corridor
- private lands in the park and on adjoining lands are subject to current and future timber harvesting and utility corridor development
- invasive species have the potential to adversely impact the park's scenic forest resources by:
  - outcompeting native shrubs and reducing regeneration of forest species
  - obscuring cultural landscapes that are historically located in open areas
- disturbances such as fire and major storm events can cause scenic landscapes to revert to early successional habitats

3.5 Socio-Economic Environment

3.5.1 Regional Overview

Historically the coal industry has driven the region's economy. Although it continues to be the driving force in the economy, communities throughout the region have experienced dramatic job and population losses since the 1960s when the coal industry began its decline across the state of West Virginia. Today the post-coal regional economy is shifting to one based not only on coal but on destination tourism and retirement living.

The region's appeal as a tourism destination has been growing over the past 35 years. Its natural beauty and the opportunities for outdoor recreation are the major attractions to vacationers and adventurers. The region has long marketed itself as having "America's Best Whitewater". Southern West Virginia offers many other types of outdoor activities as well – hiking, rock climbing, fishing, hunting, birding, mountain biking, skiing, and ATV riding. Extensive public lands are available for visitor use, such as the Monongahela National Forest, Babcock State Park, Hawks Nest State Park, Pipestem State Park, numerous state wildlife management areas, and three units of the national park system – the Gauley River National Recreation Area, Bluestone National River, and New River Gorge National River.

In recent years the coal heritage stories told at the historic coal-boom era towns and abandoned industrial sites throughout the region are attracting visitors interested in Appalachian cultural and industrial history. Most of the southern West Virginia region is within the National Coal Heritage Area authorized by Congress in 1996, recognizing it as a distinctive landscape that tells a nationally important story.

Scenic touring is another component of the region's tourism economy. Two National Scenic Byways attract visitors to the area – the Midland Trail and the Coal Heritage Trail. The New River Gorge Bridge – the highest bridge in North America – is a scenic attraction and the site of the annual Bridge Day, which draws more than 100,000 visitors to the area each October.

The two primary visitor service hubs in the region are Beckley and Fayetteville. Beckley is home to Tamarack, a showcase for West Virginia's art, crafts, music, and food. Beckley also contains a large concentration of hotels, restaurants, shopping and other visitor services. The Fayetteville area has become a major lodging, dining, and shopping destination for whitewater enthusiasts because of its close proximity to the renowned whitewater stretches of the New River and the Gauley River – considered by paddlers to be among the most challenging whitewater in the United States.

3.5.2 The Park's Community Neighbors

New River Gorge National River – located in the heart of the southern West Virginia region – encompasses portions of Summers, Raleigh, and Fayette Counties and adjoins Nicholas County. Several larger communities within or near the park are gateways to the park (see Table 3.16). In addition are numerous small communities and settlement areas within the park, some of which function also function as gateways to the park (see Table 3.16).

- **Four-County Area Socio-Economic Profile**

Four-County Population Profile. In 2006 approximately 165,899 people lived in the four-county area surrounding the park (U.S. Census). The population base has not been growing – its growth rate from 1990 to 2006 was just 0.1 percent, and its

TABLE 3.15 Four-County Population Characteristics, 1990 to 2005/2006

	Fayette County	Nicholas County	Raleigh County	Summers County	Total
Population					
1990	47.952	26,775	76,819	14,204	165,750
2000	47,479	26,562	79,220	12,999	166,360
2006 Estimated	46,610	26,442	79,302	13,531	165,889
Numerical Change	-1,342	-329	2,483	-673	139
Percent Change	-2.8%	-1.2%	3.2%	-4.7%	0.1%
Housing					
1990	20,841	11,235	33,278	6,769	72,123
2000	21,616	12,406	35,678	7,331	77,031
2005 Estimated	22,204	12,822	36,439	7,450	78,915
Numerical Change	1,363	1,587	3,161	681	6,792
Percent Change	6.5%	14.1%	9.5%	10.1%	9.4%
Employment					
1990	13,010	9.050	30,980	2,640	55,680
2006	12,255	8,572	32,327	2,642	55,796
Numerical Change	(755)	(478)	1,347	2	116
Percent Change	-5.8%	-5.3%	4.3%	0.1%	0.2%

Source: U.S. Bureau of the Census

population has not grown at all since 2000. Population is dispersed throughout the area, with few population centers. Beckley, the largest city is located in Raleigh County and had a 2000 population of 17,254. The next largest community, Oak Hill is in Fayette County and had 7,272 residents in 2006.

The four-county area's population is fairly old – three of the counties have median ages of about 39.5 years and the fourth, Summers County, has a median age of 43.4 years. These figures exceed the state (38.9 years) and national (35.3 years) median figures. Despite the older median age, there is a strong base of younger residents. About 30 percent of the area's population is under the age of 25. But those over the age of 55 represent 26 percent of all residents, leaving small numbers of people in the middle of the age profile.

The four-county area contains few minority residents. More than 92 percent of residents are White. About six percent are Black, and less than one percent are Asian, American Indian, other races, or multiracial. Those of Hispanic origin compose less than one percent of the area's population.

Educational attainment is low in all four counties. Seventy percent of adults over the age of 25 have high school diplomas and just 11 percent have degrees from four-year colleges.

Four-County Economic Profile. As of June 2007, the area's labor force contained 67,730 workers, representing about 41 percent of the area's total population. The unemployment rate at that time was 4.6 percent, down significantly from 7.4 percent at the beginning of 2004. Fayette County's unemployment rate has fallen sharply in recent years, from 8.4 percent at the beginning of 2004 to 4.9 percent as of June 2007.

Labor and unemployment vary somewhat by season in the area. At the seasonal peak in July, 2006 there were 68,620 people in the area's labor force compared with about 64,240 in January of that year. Fayette County, where the summertime labor force grows by about 2,000 people, is most affected by the season. Unemployment varies with the season as well, typically peaking in January or February and bottoming out in September or October.

More than half of the area's jobs are in services, leisure, and hospitality and retail trade – industries that do not generally pay well. Another 20 percent of jobs are in the government sector, indicating that the area is heavily dependent on public spending. The natural resources and mining sector – once the dominant employer in the area – now only accounts for six percent of jobs in the four-county area.

Employment in the area is heavily concentrated in Raleigh County, where 58 percent of the jobs in the four counties are located. Beckley and the surrounding area clearly forms the economic heart of the area and, outside of other locations along the U.S. 19 corridor, economic opportunity is very limited. Raleigh County has shown the most job growth since 2000, adding more than 1,300 jobs from 2000 to 2006. Though Fayette County lost more than 750 jobs from 2000 to 2006, most of the job losses occurred in the manufacturing sector early in the decade. Since 2001 Fayette County has rebounded, adding approximately 500 jobs. Employment growth included a 67 percent growth in the natural resources and mining sector and a doubling of jobs in the financial activities (which includes real estate), indicative of the influx of developers, realtors, and lenders. During the same period in Fayette County there was stagnation in the leisure and hospitality sector, the county's largest employment sector.

The four-county area's income levels are quite low, with 48 percent of households in the area earning less than $25,000 per year. The area's median household income as of 2000 was about $26,000, compared with $29,700 for West Virginia and $42,000 for the United States as a whole. Just 22 percent of the resident base earns over $50,000 per year and only 9 percent earns over $75,000 per year. In 2000, 20.0 percent of the area's residents were living below the poverty line (US Census figure).

■ **Socio-Economic Profile of Communities near the Park**

Population Profile of Communities near the Park. Of the six large communities near the park, three grew in population from 1990 to 2000 and three lost population (see Table 3.16). During the 1990s Fayetteville grew by 27 percent, Summerville grew by 22.9 percent, and Oak Hill grew by 10.2 percent. Conversely, during the 1990s Hinton lost 17.4 percent of its population, Mt. Hope lost 6 percent, and Beckley lost 5.8 percent. In general, the communities had a larger population over age 65 when compared to the area as a whole. Mt. Hope had a larger population under age 18 than the rest of the area, while Fayetteville and Oak Hill had fewer people under age 18.

Economic Profile of Communities near the Park. In 2000 owner-occupied housing units were highest in Fayetteville (82%), where median household income was also highest ($35,043). Owner-occupied housing units were lowest in Mt. Hope (72.8%) where median income was also lowest ($28,122). The percentage of households living below the poverty level was relatively high in all six communities ranging from 11.7 percent in Fayetteville to 36 percent in Mt. Hope (compared to 14.7% statewide and 11.3% nationally).

TABLE 3.16 Communities within and near the Park

	Large Communities	Small Communities	Named Settlement Areas
Communities within the Park	none	Highland Meadow Creek Thurmond Prince	Brooks Backus Quinnimont Terry Thayer
Communities near the Park	Beckley* Fayetteville* Hinton* Oak Hill* Mt. Hope* Summersville	Meadow Bridge Grandview Glen Jean Winona Lansing Sandstone* Piney View Cunard Lookout Ansted*	Abraham Brooklin Barksdale Minden Red Star/Harvey Brooklyn Clifftop Edmond Ames Heights Layland

* Communities that currently function as "gateways" to the park offering commercial services used by visitors

3.5.3 Land Use

■ **Housing**

Despite the stagnant population levels, strong growth has occurred recently in the area's housing inventory. From 1990 to 2005, the net change in housing units was 6,792, a growth rate of 9.4 percent over fifteen years. A large part of the reason for stronger housing unit growth than population growth is declining household size. In 1990, the area's average household size was 2.58 persons; by 2000 it had fallen

TABLE 3.17 Population Characteristics of Large Communities near the Park, 1990 to 2000

	Hinton	Beckley	Mt. Hope	Oak Hill	Fayetteville	Summersville
Population						
1990	3,433	18,296	1,573	6,812	2,182	2,666
2000	2,835	17,425	1,478	7,509	2,771	3,276
Numerical Change	(598)	(871)	(95)	697	589	610
Percent Change	-17.4%	-4.8%	-6.0%	10.2%	27.0%	22.9%
Households						
1990	1,578	7,754	627	2,835	827	1,167
2000	1,327	7,645	630	3,225	1,157	1,475
Numerical Change	(251)	(109)	(95)	390	330	308
Percent Change	-15.9%	-1.4%	-6.0%	13.8%	39.9%	26.4%
Average Household Size						
1990	2.21	2.25	2.48	2.34	2.46	2.24
2000	2.10	2.21	2.35	2.28	2.30	2.18
Housing Units						
1990	1,774	8,917	765	3,157	915	1,266
2000	1,567	8,736	750	3,606	1,256	1,562
Numerical Change	(207)	(181)	(15)	449	341	296
Percent Change	-11.7%	-2.0%	-2.0%	14.2%	37.3%	23.4%
Age Profile. 2000						
Under 18	22.5%	22.0%	26.5%	19.4%	20.2%	21.6%
18-24	7.7%	8.5%	8.5%	8.3%	7.3%	9.3%
25-34	7.4%	10.2%	12.1%	12.2%	12.6%	8.5%
35-44	15.9%	15.1%	13.3%	14.4%	13.2%	15.0%
45-54	11.1%	14.8%	15.1%	16.6%	17.1%	15.3%
55-64	11.0%	8.5%	8.4%	8.9%	10.0%	11.5%
65+	24.3%	20.9%	16.2%	20.2%	19.7%	18.7%
Income Profile, 2000						
Under $25,000	59.4%	45.1%	60.0%	50.3%	38.2%	42.0%
$25,000 - $49,999	24.2%	28.5%	26.2%	31.0%	26.7%	28.2%
$50,000 - $74,999	9.9%	13.0%	10.7%	12.9%	20.4%	16.2%
$75,000 or more	6.5%	13.4%	3.2%	5.8%	14.7%	13.5%
Median HH Income	$20,323	$28,122	$18,375	$24,792	$35,043	$29,783
% below Poverty	27.6%	20.9%	36.0%	17.7%	11.7%	12.7%
Housing Tenure						
Owner Occupied	67.8%	63.7%	60.2%	72.8%	82.2%	70.2%
Renter Occupied	32.2%	36.3%	39.8%	27.2%	17.8%	29.8%
Seasonal Units as % of Total Housing Units	1.7%	0.7%	4.0%	1.6%	2.9%	0.7%

Source: U.S. Bureau of the Census

to 2.40 persons. This mirrors a national trend in falling household sizes. In 1990, the area's average household size was 2.58 persons; by 2000 it had fallen to 2.40 persons. This mirrors a national trend in falling household sizes.

Development of seasonal housing units is the other major cause of housing growth. In 1990, there were 1,898 housing units reported as being used for "seasonal, recreational, or occasional use" in the area, representing less than three percent of all housing units. By 2000, there were 3,233 seasonal units, representing nearly seven percent of all dwelling units. Continued vacation home development in the area is expected in the future. In the past three years Fayette County has approved almost 2,500 new housing units, most of which are expected to be seasonal homes and most of which are planned for the Fayetteville area in the vicinity of New River Gorge National River.

- **Commercial and Industrial Development**

Commercial and industrial development in the past few years has been strongest in Raleigh County in and around the city of Beckley. The Beckley Higher Education Center recently opened in a new 67,000 square foot facility. The Raleigh County

Memorial Airport Industrial Park recently expanded by 325 acres. New technology parks are being developed at the Woodlands on the east side and at Pinecrest Business and Technology Park. In downtown Beckley there has been recent reinvestment interest, and the Beckley Inter-modal project is under construction which will provide underground parking, a cultural center, and farmers market. Restaurant and lodging development has continued in the vicinity of the Harper Road Exit on the West Virginia Turnpike. Other major commercial developments in the past few years include Cranberry Plaza and a second Wal-Mart store.

In Fayette County recent new commercial development has concentrated in the U.S. Route 19 corridor with major investment near Fayetteville where Wal-Mart and Lowes have recently built new stores. Wolf Creek Park is a major new mixed-use business park under development.

In Summers County the city of Hinton recently opened the 38,000 square foot Hinton Technology Center, designed for high technology office use.

- **Community Planning and Growth Management**

West Virginia law requires that all communities must have a comprehensive plan (see Section 1.10.2 above). Fayette County has adopted a detailed plan addressing future land use and provision of facilities and services in the county (Fayette County 2001). Summers County has developed a long-range vision (Summers County 2002) and is in the process of preparing a more detailed comprehensive plan to achieve the vision. Zoning is in effect in Fayette County, Raleigh County, Beckley, Fayetteville, and Hinton.

Table 3.18

New River Gorge National River
Three National Parks in Southern West Virginia - Annual Economic Impact (2005)
(New River Gorge National River accounts for approximately 80% of total)

Impact	Annual Amount
Jobs	3,550
Earnings (from new jobs)	$49,524,450
NPS Spending in the Region	$7,208,400
Recreational Visitor	$79,401,000
Local and Regional Spending (as a result of new jobs)	$43,408,090
Taxes Generated	$9,394,467

Source: Versel 2006

Table 3.19

New River Gorge National River
Three National Parks in Southern West Virginia - Visitor Spending Breakdown by County

County	Percent
Fayette	25%
Nicholas	7.5%
Raleigh	50%
Summers	17.5%

Source: Versel 2006

3.5.4 Economic Impact of the Park

A recent study of the economic impact of the three national park units in southeastern West Virginia – including New River Gorge National River, the Gauley River National Recreation Area, and the Bluestone National Scenic River – indicated that the parks generated approximately 3,550 jobs with $49.5 in annual earnings, $130 million in annual spending, and $9,400,000 in annual taxes (see Table 3.18) (Versel 2006). New River Gorge National River accounted for approximately 80 percent of the total impact of the three parks.

- **Jobs and Earnings Generated**

The 3,550 jobs generated by the parks included (1) the NPS employees who operated the park (138 jobs), (2) the directly related jobs in the tourism industry that provided the goods and services desired by visitors (2,350 jobs), and (3) the indirectly related jobs in the local and regional communities that provided the goods and services desired by the NPS and tourism industry employees (1,062 jobs) (Versel 2006). The combined 2005 annual earnings from these jobs was estimated to be $49,254,450 (Versel 2006).

- **Recreational Visitor Spending**

Visitors to the three national park units in 2005 spent about $79.4 million in Fayette, Nicholas, Raleigh, and Summers Counties (Versel 2006). The average travel party visiting the parks spent $399 during its visit (NPS 2006e). About half of these expenditures were for lodging (25%) or food (23%) expenses (NPS 2006e). Guide fees were the next largest category, representing 19 percent of all visitor spending, despite the fact that three-quarters of visitors did not use guide services (NPS 2006f). Visitors who did use guides spent more for their services.

- **Local and Regional Spending as a Result of New Jobs**

Local residents employed by the NPS at the park or working in the tourism industry spend most of their earnings in local communities or within southern West Virginia. In 2005 the total spending in the region by these residents was estimated at $43.4 million (Versel 2006).

- **Taxes Generated**

State and local taxes paid in 2005 as a result of economic activity related to the three parks were estimated at $9.4 million (Versel 2006). These taxes included state sales taxes, state lodging taxes, state income taxes, local property taxes, and payments in lieu of taxes (PILOT). PILOT payments totaling $90,000 were made by the NPS to the four counties in lieu of property taxes because federally-owned land is not directly taxable to local jurisdictions. Actual taxes paid in 2005 would be higher if local utility taxes paid by park and tourism related homes and businesses were included in the estimate.

3.5.5 Socio-Economic Environment Concerns

- **Community Awareness and Attitudes toward the Park**

Within the broad community in and around the park there are highly varied views, perspectives, and attitudes regarding the park. Many people do not understand that New River Gorge National River is a unit of the national park system and its significance to all citizens of the United States. Respect for the park and an appropriate level of stewardship is not always evident in the local community. A complaint from long-time residents of the area is that federal ownership of land within the park boundary has resulted in loss of access to recreational activities that were previously permitted on private property, such as unrestricted hunting, ATV riding, and camping.

- **Development within and adjoining the Park**

Local community planning and land development activities are directly and indirectly impacting park resources and visitor experiences. Approval of residential development projects in recent years will enable future development of homes within the park boundary in highly visible locations along the rim and on the gorge walls. In some jurisdictions private land in the park is not subject to zoning regulations increasing the potential for future development that could adversely impact park resources.

- **The Park's Role in the Regional Tourism Market**

Economic development interests in the southern West Virginia region have expressed the need to work cooperatively to develop a shared vision for the future of the region and a plan for marketing the region to accomplish that vision. The NPS is a key partner in this effort given the park's role as the major tourism attraction in the region. Some people have suggested that a "great lodge" should be developed as a regional attraction in or near the park.

3.6 Visitor Experience and Visitor Use

3.6.1 Visitation and Visitor Use Overview

- **Visitation and Visitor Profile**

Annual Visitation. During the early years of New River Gorge National River – from 1984 to 1993 – the number of visitors to the park grew rapidly from about 0.2 million to 1.0 million people per year (see Table 3.20). Since 1993 annual visitation has hovered around 1.0 to 1.2 million, with slightly more visitors coming to the park in the late 1990s and early 2000s when compared to recent years since 2002.

It is worth noting that actual visitation to the park is probably higher than officially recorded by the NPS because visitor counting procedures do not include visitor use in remote areas of the park used for various adventure sports

New River Gorge National River
Park Significance Statement 6

New River Gorge National River provides visitors with exceptional opportunities for exploration, adventure, discovery, solitude and community.

Fundamental Resources and Values

- experience and enjoyment visitors derive from the direct interaction with the outstanding scenic, natural, and cultural resources through a variety of recreational activities

Other Important Resources and Values

- experience of a tranquil setting characterized by largely natural sounds

Table 3.20

New River Gorge National River
Park Total Visitation
(1984 – 2007)

Year	Total Visits
1984	231,295
1985	263,021
1986	395,159
1987	437,871
1988	400,802
1989	412,275
1990	379,115
1991	773,702
1992	952,979
1993	1,020,224
1994	1,088,102
1995	1,165,437
1996	1,225,345
1997	1,215,861
1998	1,183,853
1999	1,173,151
2000	1,117,657
2001	1,218,783
2002	1,203,404
2003	1,113,561
2004	1,154,181
2005	1,048,212
2006	1,127,086
2007	1,180,411

Source: NPS 2008a

Table 3.21

New River Gorge National River
Seasonal Visitation
(2007)

Month	Monthly Visits
January	17,887
February	21,858
March	50,269
April	68,084
May	135,348
June	165,189
July	230,682
August	201,840
September	96,571
October	122,474
November	38,654
December	31,555

Source: NPS 2008a

Seasonal Visitation. Summer is the time of year when the most people visit New River Gorge National River (see Table 3.21). Approximately 51 percent of the visitation occurs in June, July, and August, with July being the busiest month. Larger numbers of visitors also come to the park during the spring (May) and the fall foliage season (October). Visitation is lowest in the winter months from December through February, with the quietest time during January.

Visitor Profile. Visitation to the New River Gorge region can be generally divided into three distinct visitor markets:

- **local residents** who make regular use of the park and who live in the four-county region of Fayette, Nicholas, Raleigh, and Summers Counties
- **regional residents** who take daytrips to the park and who live within 100 miles of Beckley but outside the our resident counties
- **non-resident tourists** who either stay overnight or visit as part of longer trips and who live outside the 100-mile radius of Beckley

The current base of non-resident tourists is estimated to be the number of counted visitors to New River Gorge who either stayed overnight or passed through. In 2004 these two groups accounted for 74 percent of all visitation. Applying this figure to the 1.18 million estimated 2007 annual visitors to New River Gorge, about 874,000 non-resident tourists visit New River Gorge each year. These visitors are better educated and more affluent than the local resident base. In addition to being the target audience for tourism in the area, these individuals are increasingly becoming the target market for vacation and retirement home developments in Southern West Virginia.

The age distribution of visitors to the park reflects national age profiles. The largest share of visitors (35%) is in the baby boom generation from age 41 to 60 (Manni et al. 2005). Just 12 percent of visitors are age 61 or older, suggesting that there may be more opportunities to draw older visitors in the future (Manni et al. 2005).

Visitors to the park tend to be better educated than the overall traveling public. Nearly half of visitors to New River Gorge have at least a college education, indicating a well-educated (and affluent) visitor base (Manni et al. 2005). Eighteen percent of visitors have graduate degrees and another 29 percent have bachelor degrees.

First-Time Versus Repeat Visitors. Almost half of the visitors to New River Gorge have been there before. Ten (10) percent have visited the park from 5 to 10 times before and 14 percent have been there 11 times or more (Manni et al. 2005). About a quarter of the park's visitors have previously made 2, 3 or 4 visits to the park. For slightly over half of visitors it is the first time that they have been to New River Gorge.

TABLE 3.22 New River Gorge National River – Visitor Use Statistics (1998 – 2007)

Location / Visitor Use	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Change (1998-2007)
Canyon Rim VC	450,623	405,060	378,363	460,308	440,855	341,193	362,053	321,888	360,633	405,348	-10.0%
Sandstone VC	0	0	0	0	0	20,281	51,850	52,345	53,056	53,720	--
Grandview VC	168,968	233,475	203,690	250,558	208,928	329,653	338,703	268,405	275,368	243,563	44.1%
Thurmond VC	20,120	14,086	15,600	11,178	11,052	13,290	12,594	7,804	7,233	7,527	-62.6%
Glen Jean Bank	2,654	3,187	3,494	3,805	3,523	3,253	3,209	2,630	1,884	1,701	-36%
Sandstone Falls	113,540	95,970	71,148	82,813	86,768	78,748	90,310	79,290	76,250	88,490	-22.1%
Glade Creek[1]	124,763	122,733	131,590	128,933	132,328	27,008	475	30,105	62,033	86,520	-30.7%
Outfitted Paddlers[2]	124,616	124,616	124,616	124,616	124,616	124,616	124,616	124,616	124,616	124,616	--
	158,771 (DNR)	155,543 (DNR)	157,070 (DNR)	147,497 (DNR)	154,063 (DNR)	131,752 (DNR)	140,518 (DNR)	138,836 (DNR)	129,166 (DNR)	126,629 (DNR)	-20.2%
Private Paddlers[3]	31,466	31,466	31,466	31,466	31,466	31,466	31,466	31,466	31,466	31,466	--
Tent/RV Campers	17,433	17,765	21,783	18,998	19,555	10,415	11,048	9,613	10,558	10,710	-38.6%
Trail Users	74,939	70,025	79,839	55,247	85,734	77,243	71,626	66,750	67,635	67,897	-9.4%
Climbers	6,653	6,208	9,549	13,343	13,620	12,797	15,552	14,661	13,796	15,894	239%
Bus Visitors	23,680	27,160	24,120	24,120	22,560	21,200	18,280	16,240	14,160	14,560	-38.6&
Special Events	22,000	19,000	20,000	11,000	20,000	20,000	20,000	20,000	26,000	26,000	18%
Non-Rec Visitors	2,398	2,400	2,399	2,398	2,399	2,398	2,399	2,399	2,398	2,399	0%
Total	1,183,853	1,173,151	1,117,657	1,218,783	1,203,404	1,113,561	1,154,181	1,048,212	1,127,086	1,180,411	-0.3%

1. Closures of the Glade Creek Road from 2003 have made the site less accessible for vehicles; the road reopened on January 8, 2008.
2. DNR estimates for the same years provided.
3. Actual estimates of private paddlers calculated in 1995 to be 31,466 (based on 1994 data); the same estimate has been used since then.

Source: NPS 2008a

Visitor Group Size and Travel Party Type. Groups visiting the park tend to be large, with 34 percent of parties containing five or more people and an overall average of 5.5 persons per party (Manni et al. 2005). However, 36 percent were parties of one or two people.

About two-thirds of visitors came in family groups or in groups composed of families and friends. Just 20 percent came as friends, demonstrating the family-oriented appeal of the area. Only 12 percent came to visit friends or family, unlike other parts of West Virginia where this market segment is near 40 percent of all visitors.

For about half of park visitors, New River Gorge is their primary travel destination and for about a third it is one of several travel destinations on their trip. About 20 percent of visitors arrive at the park without having planned to do so.

Visitor Length of Stay. Visitors to the park are transient by comparison to other national park units, many while "stopping by" spontaneously while on a road trip to other destinations. A part of one day is all that most visitors currently spend at New River Gorge (Manni et al. 2005). Visits lasting less than an hour are typical for about 25 percent of visitors. Only about 25 percent of visitors spend more the five

hours in the park. For those staying more than one day, 66 percent are there for two days and about 10 percent spend more than five days in the park.

3.6.2 Opportunities for Exploration, Adventure, Discovery, Solitude, and Community

The dramatic New River Gorge landscape and the whitewater recreation opportunities of the New River attract most first-time visitors to the park. Those new to the park quickly discover that within the spectacular gorge landscape and along the river are hidden the remains of dozens of towns that tell the stories of West Virginia's coal, lumber and railroading industries that flourished in New River Gorge during the late nineteenth and early twentieth century. For most visitors the spectacular terrain of the gorge, the free-flowing New River, and the tranquil setting – interspersed with the remnants of the gorge's human history – offer appealing opportunities for a variety of recreation and learning experiences.

- **New River Gorge's Classic Visitor Experiences**

A few experiences at New River Gorge are "classic" because they showcase the park's most significant natural and cultural resource. These experiences occur in a few specific places where visitors go most often – where they know they will most easily experience the best of the gorge and typically where the NPS has facilitated access and provides visitor services and interpretation.

Canyon Rim. From Canyon Rim, visitors experience dramatic rim-to-river views of the gorge, the New River Bridge, and the broader Appalachian Plateau. At the Canyon Rim Visitor Center the NPS orients visitors to the park and tells the park's stories through exhibits and interpretive programs. More people visit Canyon Rim than any other site in the park because of the views, the visitor center facilities and services, proximity to the New River Bridge, and its easy regional access from US Route 19. In 2007 approximately 405,300 people – or 34 percent of all park visitors – stopped at the Canyon Rim Visitor Center.

Grandview. At Grandview, visitors have a traditional family recreation experience, including picnicking, playing, hiking, and outdoor theatre. The site also provides access to spectacular rim-to-river views in the Turkey Spur area. Grandview opened for public use in 1941 as one of the state's early state parks, built by the NPS and the Civilian Conservation Corps. Since that time several generations of West Virginians have grown up visiting Grandview and return on a regular basis to participate in family reunions which occur every weekend throughout the warm months in the Grandview picnic pavilions. A small visitor center provides visitors with information about the park and interpretive programs. Grandview is the second most visited site in the park. In 2007 approximately 243,560 people – or 21 percent of all park visitors – spent time at Grandview.

Sandstone Falls. Sandstone Falls provides visitors the opportunity to experience the sights, sounds, and smells of the river. A boardwalk enables visitors to get very

close to the river at the site of the park's largest waterfall and to experience the adjoining rare Appalachian flatrock community. As a former settlement site in the upper gorge the site also offers also learn about the area's early history. Visitor facilities include a picnic area, interpretive waysides, a fishing beach, and a river access (below the falls). In 2007 approximately 88,490 people – or 7.5 percent of all park visitors – experienced the river at Sandstone Falls.

Sandstone Visitor Center. Approximately 50,000 visitors stop in at the Sandstone Visitor Center each year to get information about the park – its resources and stories and the experiences available. Views of the upper gorge provide visitor with a sense of the power of the river and the rugged forested terrain.

Endless Wall. A cliff top trail takes visitors through a beautiful pine forest and rhododendron thickets to the top of the sandstone outcrop known as the Endless Wall. The Endless Wall Trail takes visitors to Fern Point, Diamond Point, and numerous vantage points from which they experience the open expanse of the gorge and spectacular views of the Appalachian Plateau and the New River some 1000 feet below. From these vantage points visitors experience the power of the river evidenced by the gorge and the sheer rock walls it has carved.

Kaymoor and Nuttallburg. Visitors learn about the park's industrial heritage at Kaymoor and Nuttallburg. Those in good physical condition can hike down the 900 stairs to the former Kaymoor town site. Planned improvements will facilitate visitor access to the nationally significant Nutallburg Mining Complex and Town Site and enhance the visitor experience through new waysides and interpretive programs.

Fayette Station Road. Visitors can experience travel through the gorge as it was before the New River Bridge was built in 1977. The 100-year old Fayette Station Road winds down to the bottom of the gorge, crosses the river on a narrow bridge, and winds back up the gorge wall to the rim. Wayside exhibits describe the history of mining, transportation, and life in the gorge. Along the way visitors can stop at the sites of historic coal mining communities, view rock climbers, see the New River Bridge from below, get close to the river, and view paddlers as they pass through the Fayette Station Rapid.

Thurmond. At Thurmond visitors learn about the history and culture of New River Gorge during its industrial heyday. Thurmond – once a classic boomtown deep in the gorge – today remains surprisingly untouched except by the forces of nature seeking to reclaim the site. Now largely owned by the NPS, the town site is open for visitors to explore the ruins and remaining historic buildings stabilized by the NPS. The Thurmond Depot is now a small park visitor center where visitors are oriented to Thurmond through exhibits and interpretive programs. In 2007 approximately 7,500 people – or <1 percent of all park visitors – stopped at the Thurmond Depot Visitor Center.

RIVER TRIPS

New River (upstream) — **New River (downstream)**

A	B	C	D	E	F	G
Upstream - Hinton (Private)	Sandstone Falls (Public)	Glade Creek (Public)	McCreery (Public) Grandview Sandbar (Public)	Stone Cliff (Public)	Cunard (Public)	Teays Landing (Private) Fayette Station (Public)

- Canoe, Fish, Batteau (Class I – II+ Rapids)
- Private Paddle (Class I – II+ Rapids)
- Fishing Float (Class I – II+ Rapids)
- Family Float (Class I – III Rapids)
- Adventure Float (Class III – IV Rapids) (<4,500 CFS)
- Adventure Float (Class III – IV Rapids) (>4,500 CFS)
- Family Float (Class I – III Rapids)

RALEIGH COUNTY · BEAVER · DANIELS · SHADY SPRING · STANAFORD · OAK HILL · FAYETTE COUNTY · FAYETTEVILLE · ANSTED · HINTON · SUMMERS COUNTY · MEADOW BRIDGE · Bragg · Backus · Danese · New Richmond · Babcock State Park

Powerline Site · Army Camp · Terry Road · Shoals · Hidden · Flieshman's · Sandy Beach · White House · Upper Dowdy Creek · Lower Dowdy Creek · McKendree · Rt. 41 Site · Royal Pullout · Grandview Sandbar walk-in · Grandview Sandbar · Lower Mill Creek · Upper Mill Creek · Grassy Shoals · Glade Creek Walk-In · Glade Creek · Quinnimont · Apple Orchard · Depot Beach · Dowdy Creek Tunnel · Upper McKendree · Middle McKendree · Lower McKendree · Ledges · Silo · Appalachian Wildwater · Stone Cliff · Lower Stone Cliff · Arbuckle Creek · Dun Glen · Adventures Mtn River · Lower Thurmond · Rush Run · Fire Creek Hilton · Below Surprise River Left 2 · Below Surprise RL 1 · Brooklyn · Red Ash Island Beach · Lower Todd Beach · Middle Todd Beach · Upper Todd Beach · Fire Creek · Below Surprise River Right 1 · Buzzards Bend/ Ephraim Creek · Below Surprise River Right 2 · Below Surprise River Right 3 · Thayer · Lower Railroad · AW Launch · Railroad · Indigestion · Manns Creek · AW Lunch Area 2 · AW Lunch Area 1 · Upper Cunard · Sewell Beach · Upper Sewell Beach · Above Millers Folly · Below Dudleys Dip · Above Dudleys Dip · Middle Keeneys RL · Big Rock · Ender Waves/ Elverton · Swimmers · Caperton · Middle Keeneys Beach · Rope Swing · Lower Keeneys Amphitheater · Lower Kaymoor · Greyhound · Above Hook 99 · Short Creek · Teays · Jump Rock Beach · Bridge 3 · Bridge 2 · Bridge 1 · Bennett Hole · Shell Beach · Across from Meadow Creek · Meadow Creek Island · River Chase Upstream from Meadow Creek · I-64 Public · I-64 Private · Berry Campground · Upper Tug Creek · Hellems Beach · Bass Lake

State Roads
- Primary State Road (Paved)
- Secondary State Road (Paved)
- State Maintained Gravel Road
- Not Maintained Road

National Park Service Roads
- NPS Maintained Gravel Road
- NPS Official Trail

Private Roads
- Private Road
- Other Trails

Land Ownership
- NPS land within National River Limits
- State Park Land within National River Limits
- Scenic Easement
- Private Land within National River Limits

Existing Visitor Use
- High Visitor Use
- Moderate Visitor Use
- Low Visitor Use

Level of Development
- U Undeveloped
- S Semi-Developed
- D Developed

Existing Visitor Opportunities
- Camping - Minimum Development
- Picnicking
- Fishing
- Group Camping
- Boating - River Access

Ownership
- Private (All others Public)

N

0 mi. · 1.5 mi. · 3 mi. · 6 mi. · 9 mi. · 12 mi. · 15 mi.

Figure 3.10

RIVER TRIPS, RIVER LUNCH STOPS, AND RIVER CAMPING

New River Gorge National River

WEST VIRGINIA

National Park Service · US Department of the Interior

Table 3.23

New River Gorge National River
Whitewater Use River Sections

Upper New 1
- Hinton to Prince (McCreery)

Upper New 2
- Prince (McCreery) to Cunard

Lower New
- Cunard to below Fayette Station Rapid

Table 3.24

New River Gorge National River
River Trip Summary
(see Figure 3.11)

Upper New 1
Canoe, Fish, Batteau Float
- Class I – II+ Rapids
- Upstream Hinton to Sandstone Falls
- high level of use

Upper New 1
Fishing Float
- Class I – II+ Rapids
- Meadow Creek to McCreery (or Grandview Sandbar)
- low level of use

Upper New 1
Beginning Paddler Float
- Class I – II+ Rapids
- Glade Creek to McCreery (or Grandview Sandbar)
- high level of use

Upper New 2
Family Float
- Class I – III Rapids
- McCreery (or Grandview Sandbar) to Stone Cliff (or at lower flows Stone Cliff to Cunard)
- moderate level of use

Lower New
Adventure Float – high water
- Class III – IV Rapids
- Stone Cliff to Fayette Station (or Teays Landing
- high level of use

Lower New
Adventure Float – summer flows or express trips
- Class III – IV Rapids
- Cunard to Fayette Station (or Teays Landing)
- high level of use

■ Whitewater Paddling

The New River attracts paddlers of all abilities seeking the thrill, exhilarating rush, and social bonding of the whitewater experience. Some of these visitors are extreme adventurists who paddle the Class IV rapids of the lower gorge in rafts and kayaks. Most are outfitted paddlers riding the river with experienced guides in organized commercial trips. Increasingly families are making guided and unguided river trips with teenage children or in family flotillas, preferring the more gentle rapids of the upper gorge. Collectively the whitewater paddlers – including the **outfitted paddlers** who ride with commercial outfitters and the **private paddlers** who ride on their own – compose one of the largest groups of visitors to the park. In 2007 approximately 124,620 outfitted paddlers and 31,470 private paddlers – or over 13 percent of all park visitors – floated the New River.

The New River from Hinton to Brooks Falls/Sandstone Falls is wide and shallow and popular with recreational paddlers in canoes or fishermen in john boats with small outboard motors (Figure 3.10). The stretch from Sandstone Falls to Glade Creek (or Grandview Sandbar) is popular with fishermen and duck hunters in small motorized boats, and private paddlers in canoes. The stretch from Glade Creek to Grandview Sandbar is popular with an increasing number of beginning private paddlers because of the easy road-side shuttle, which enables visitors to make several runs in one day. The 13-mile stretch from McCreery to Stone Cliff contains many Class I to Class III rapids and is a popular one-day run for beginning kayakers and rafters. The stretch from Stone Cliff/Dun Glen to Cunard at normal water levels is the first half of the Lower New one-day trip and contains one very large Class III rapid and several long pools. Since development of the Cunard access in 1990, paddlers have had the option to skip the first half and instead put in at the beginning of the Class III to Class IV rapids. Commercial outfitters have accordingly developed this option into an express half-day trip. By far the most popular one-day or express whitewater run for all paddlers is the Lower New, either starting at Stone Cliff/Dun Glen during high water flows or starting at Cunard at normal or low water levels and ending at Fayette Station.

Outfitted Paddling Overview. Whitewater paddling is the largest sector of the state's outdoor recreation economy. The state of West Virginia Department of Natural Resources regulates commercial whitewater use (outfitted paddling). Since 1992 the state has limited the maximum daily commercial use on the Lower New to 3,875 outfitted paddlers. Limits are not in place for the Upper New.

Paddling on the New River – as elsewhere in the state – grew dramatically in the 1980s and 1990s, peaking in 2002. Since 1996 outfitted paddling has experienced a decline in volume statewide of some 55,000 trips. At New River Gorge, in 2007 approximately 106,109 outfitted paddlers rode the Lower New. While this was the highest paddling volume on the state's commercial whitewater rivers, it represented

TABLE 3.25 West Virginia Commercial Rafting Industry Performance by River Segment, 1996 – 2007 (thousand paddlers)

River Section	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Change (1996-2007)
Upper New	22.8	20.5	24.7	22.7	23.8	31.7	24.7	28.4	24.7	23.4	23.9	20.5	-2.3
Lower New	134.2	125.2	133.7	132.9	133.2	116.4	129.3	105.8	111.5	113.7	103.7	106.1	-28.1
Upper Gauley	41.4	35.3	40.9	38.0	38.9	35.9	36.3	31.9	28.4	30.4	30.0	30.5	-10.9
Lower Gauley	21.4	20.6	23.0	21.1	23.5	24.0	22.2	24.1	18.3	16.2	17.8	16.3	-5.1
Cheat	12.1	9.7	8.3	4.3	7.1	6.9	4.0	6.6	5.3	3.8	3.5	5.0	-7.1
Shenandoah	19.2	13.0	18.3	7.9	22.9	22.9	5.9	25.1	21.8	21.6	21.0	17.7	-1.5
Total	251.1	224.2	248.8	226.9	249.4	237.2	223.0	221.8	210.1	209.1	199.8	196.1	-55.0

1. Separate counts for Upper New 1 and 2 were only kept following the 1997 season. Upper New segment changes reflect from 1998
2. Tygart was excluded from data

Source: DNR Annual Whitewater Summary, 2002-2006; ERA 2007

a 21 percent decline (-28,090 paddlers) when compared to 1996. In contrast, approximately 20,520 paddlers rode the Upper New in 2007, representing a 10 percent decrease (-2,280 paddlers) when compared to 1996.

Outfitted paddler whitewater use of the New River begins on weekends in mid-March and builds into April to include some mid-week spring break business. While commercial whitewater use extends March through April, almost 90 percent of the total yearly visitor use occurs in the four-month period of May through August. Even though the New River has sufficient water levels to run river trips in September and October, most commercial whitewater use shifts to the nearby Gauley River National Recreation Area for the scheduled fall releases from Summersville Lake. Outfitted paddler use then shifts back to the New River for the last two weekends in October, including Bridge Day, and occasionally for a day or two in November.

Outfitted paddler trips on the New River are directly related to water levels and the available public river accesses (see Table 3.26).

Private Paddling Overview. Private paddlers float the New River in a variety of boats depending on the section of the river, the water level, and the paddler's skill level - including kayaks, canoes, shredders, duckie boats, and specially designed watercraft. Annual non-commercial use is estimated to be 31,466 private paddlers per year and generally occurs from mid-April through September, with a peak during the warm summer months (NPS 1995d) (Table 3.27).

Whitewater kayaking on the New River has changed tremendously with the development of new kayaks, equipment, and extreme paddling skills. Experienced kayakers are more likely to paddle throughout the year and at higher water levels than kayakers from ten years ago. Rodeo kayaks were developed to surf large river hydraulics and to perform tricks. These paddlers generally like to stay at one play

TABLE 3.26 New River Outfitted Paddler Typical Trip Options

River Section	River Flow	Trip Length	Put-In	Take-Out
Upper New (Family Floats)	high (spring)	full day	Grandview Sandbar (NPS) or Prince (private)	Stone Cliff (NPS) or Stone Cliff (private)
	low (summer)	<full day	Stone Cliff (NPS) or Thurmond (private)	Cunard (NPS) or Cunard (private)
Lower New (Adventure Floats)	high (spring)	full day	Stone Cliff (NPS) or Thurmond (private)	Fayette Station (NPS) or Teays Landing (private)
	high[1] (spring)	1/2 day[1] (no lunch)	Cunard (NPS) or Cunard (private) [1]	Fayette Station (NPS) or Teays Landing (private) [1]
	low (summer)	<full day	Cunard (NPS) or Cunard (private)	Fayette Station (NPS) or Teays Landing (private)
	low (summer)	1/2 day (no lunch)	Cunard (NPS) or Cunard (private)	Fayette Station (NPS) or Teays Landing (private)

Source: WVPRO 2005

Table 3.27

New River Gorge National River
Annual Estimated Private Paddler Use

Month	Private Paddlers
April	776
May	4,606
June	7,001
July	8.510
August	7.394
September	3,179
Total	**31,466**

spot on the river for long periods of time and avoid the commercial raft traffic by generally starting their trip much later in the day. Some rodeo boaters start at Cunard, paddle to the first play spot, paddle for a few hours, and then carry their boats back upstream along the railroad tracks to the Cunard parking area. This type of stationary use is expected to increase in the Kenney Creek area with the recently improved state road access. Creek boats are generally short but high volume kayaks developed to navigate narrow rocky streams with large vertical drops. Creek boaters like to paddle the steep tributary creeks, like Glade, Piney, Mann and others during periods of high water runoff. These paddlers are very skilled and have very different access needs and user preferences.

Management Concerns. During the GMP scoping process the public and the NPS identified several concerns related to whitewater paddling in the park:

- parking facilities are inadequate for private paddlers and other visitors at some public river accesses on peak visitation days
- crowding at river accesses and on the river occurs as a result of outfitted paddler trip logistics, suggesting the need to consider (1) adding a river access above Cunard, and (2) opening Glade Creek to outfitted paddler use
- changing stations and sanitary facilities are inadequate at some river accesses

- **Camping**

Camping Overview. Visitors to the park seek opportunities to camp in the frontcountry and backcountry as part of a variety of outdoor experiences. Camping

use is greatest from May through September. Campsites are generally full on weekends from Memorial Day through Labor Day. Four types of camping are available:

- **Public Campgrounds**. The state of West Virginia operates a developed public campground at Babcock State Park with full services for recreational vehicles and tent camping.

- **Primitive Campgrounds**. The NPS provides opportunities for primitive camping at 9 locations (see Table 3.28). These are used by a wide variety of visitors – families, paddlers, hikers, bikers, climbers, etc. Access is via driving, hiking, and/or paddling (see Table 3.28). Most sites are located adjacent to the New River. Facilities include designated campsites, each with a parking area, fire ring, and picnic table. Vault or portable toilets are available but there is no potable water. There is no fee for camping, but campers are required to register with a ranger at the earliest opportunity and stays in the same area are limited to no more than 14 days within a 28-day period within any park campground and/or camping area.

- **Group Campgrounds**. The park has two group camping areas. Burnwood is located off U.S. Route 19 across from the Canyon Rim Visitor Center. Dun Glen is located along the New River across from Thurmond. Access is by driving. Facilities include designated campsites, with a parking area, fire ring, and picnic tables. Comfort stations are available but there is no potable water. Both sites require a special use permit.

  Camping by commercial groups at the group campgrounds is permitted only from October 1 through the third Friday in May. This policy is in effect to eliminate conflicts between user groups and to eliminate the safety hazard and visitor experience impacts associated with commercial vehicle traffic on the narrow Glade Creek during the peak summer visitation period.

- **Undesignated Backcountry Camping**. Areas suitable for backcountry camping occur throughout the park at walk-in or boat-in sites generally along the river and adjacent to trails. Backcountry sites are not designated, although camping is not permitted within 100' of water sources, 25' of park and public roads, park buildings, official trails, developed river access sites, and developed day-use areas. Other backcountry camping prohibitions are specifically identified in the *Superintendent's Compendium* (NPS 2007). The most heavily used backcountry sites are along the Glade Creek Road, Brooklyn-Southside Junction Trail, and Stone Cliff Trail. Although use of backcountry sites in remote locations is not well documented, periodic ranger patrols have identified approximately 39 undeveloped sites along the river that receive regular use. Some of the most popular sites are

Table 3.28

New River Gorge National River
Camping Facilities

Location	Campsites
Public Campgrounds	
Babcock State Park	52 campsites 28 cabins
Primitive Campgrounds (drive-in)	
Army Camp	11 campsites
Grandview Sandbar	10 campsites
Glade Creek	5 campsites
Hellems Beach	4 campsites
Primitive Campgrounds (walk-in)	
Glade Creek	6 campsites
Grandview Sandbar	4 campsites
War Ridge	6 campsites
Hylton Strip	6 campsites
Thayer	4 campsites
Stone Cliff	8 campsites
Brooklyn	3 campsites
Group Campgrounds	
Dunglen	variable
Burnwood	variable
Undesignated Backcountry Campsites	
boat-in only sites	along the length of the river
hike-in only sites	adjacent to trails
boat-in or hike-in sites	scattered sites

Table 3.29

New River Gorge National River
Campground Use

Location	Use
Primitive Campgrounds	
Army Camp	high
Glade Creek	high
Grandview	high
Hellems Beach	high
Thayer	moderate
Stone Cliff	high
Brooklyn	moderate
Group Campgrounds	
Burnwood	moderate
Dunglen	low

occupied most nights during the summer season. These generally include sites at Quinnimont, Route 41, Upper Mill Creek, McKendree, Sewell Beach, Upper Sewell Beach, Ender Waves, and Apple Orchard. Several boat-in and walk-in sites, such as Arbuckle Creek, Manns Creek, and Indigestion, are owned by outfitters and receive heavy use as the overnight camp for their 2-day trips.

Management Concerns. During the GMP scoping process the public and the NPS identified several concerns related to camping in the park:

- the supply of drive-to developed camping does not meet demand
- the supply of non-designated primitive campsites (particularly boat-in and drive-to sites along the river) does not meet demand
- camping facilities are not available in the vicinity of climbing areas
- non-designated primitive camping can lead to resource degradation and visitor conflicts
- the increasing size of disturbed areas and the amount of litter at popular undesignated campsites with corresponding adverse environmental impacts and loss of aesthetic appeal
- the lack of a campsite reservation system makes it hard to plan trips to the park

- **Picnicking (NPS Developed Facilities)**

Picnicking Overview. Visitors enjoy opportunities for picnicking at developed NPS facilities and at undesignated picnic sites in both the frontcountry and the backcountry.

Table 3.30

New River Gorge National River
Developed Picnicking Facilities

Location	Use
Ames	low
Brooks Falls	low
Hellems Beach	moderate
Sandstone Falls	moderate
Glade Creek	high
Dunglen	low
Babcock State	high
Canyon Rim	high
Burnwood	high

- **Developed Picnicking Facilities**. Day-use facilities for picnicking (off the river) at the park are available at nine locations (see Table 3.30). Grandview is the most popular picnicking site in the park. Its five picnic shelters – with combined capacity for almost 600 people per day – are used from the end of May through mid-October, primarily for family or class reunions and company picnics. Reservations for the shelters on summer weekends are generally filled months in advance. Other popular picnic facilities in the park are Glade Creek and Canyon Rim, as well as the two picnic areas at Babcock State Park that the state of West Virginia operates.

- **River Lunch Stops**. A highlight of most river trips or backcountry fishing trips is a picnic on the bank of the New River or on one of the river's many beaches or bars (see Figure 3.11). Approximately 14 sites on the river experience heavy visitor use as lunch stops, all primarily by outfitted

paddlers; 10 of these sites are owned by the NPS and 4 are owned by outfitters. Another 16 sites experience moderate use, also primarily by outfitted paddlers; 14 of these sites are owned by the NPS and 2 are owned by outfitters. Private paddlers tend to use smaller sites along the river avoiding sites used by outfitted paddlers, such as Big Rock, Bennett Hole, and Middle Kenney Beach. No facilities are provided at any of these sites for trash collection or for visitor sanitary waste collection.

Management Concerns. During the GMP scoping process the public and the NPS identified several concerns related to picnicking in the park:

- there are not enough opportunities for picnicking at the river level
- heavy use of river lunch stops may adversely impact natural resources
- there generally are no paddler waste collection facilities at river lunch stops
- the increasing size of disturbed areas and the amount of litter at popular river lunch stops with corresponding adverse environmental impacts and loss of aesthetic appeal
- the nicest river lunch stops are generally not available to private paddlers

- **Climbing**

Climbing Overview. The hard sandstone walls of New River Gorge offer some of the best climbing opportunities in the eastern United States and in recent years has become one of the most popular climbing areas in the country. Climbers most heavily use the Nuttall Sandstone cliffs which extend for five miles upstream and three miles downstream of the New River Bridge. The cliffs range from 30 to 120 feet in height and are highly fractured, offering an abundance of crack and face routes. Approximately 1670 climbing routes provide a good variety of traditional and sport climbing routes, although most routes favor the more advanced and expert climber. About 1000 routes are traditional climbs, where the climber places protection from falls as they climb, and about 670 routes are "sport" climbs, where the protection is fixed in place using bolts and hangars (Cater 2006). The majority of routes are a 5.9 and harder, and most sport routes are in the 5.10 to 5.12 range. First time visitors and those looking for roped climbs concentrate in the Bridge Buttress area.

In 2007 approximately 15,900 visitors climbed the rock walls of the gorge, the largest number since NPS began counting climbers in 1994 (see Table 3.22). The number of climbers in the park annually has tripled since 1994. Visitors climb privately or with commercial outfitters. In 2007 the park issued commercial use authorizations to 14 commercial outfitters in the park, who provided guide services to 6,676 visitors (42% of total climbers); about 51 percent of the guided climbers were relatively inexperienced and used routes in the Bridge climbing area.

Table 3.31

New River Gorge National River
River Lunch Stops Heavily Used by Outfitted Paddlers
(see Figure 3.11)

Location	Ownership
Middle Keeney Beach	Public
Ender Waves	Public
Swimmers	Public
Indigestion	Private
Manns Creek	Private
AW Launch	Private
Sewell Beach	Public
U. Sewell Beach	Public
Below Surprise RR	Public
Below Surprise RL	Public
McKendree	Public
Dowdy Cr. Tunnel	Private
Upper Dowdy Cr.	Public
Upper Mill Cr.	Public

Table 3.32

New River Gorge National River
Climbing Use by Area (non-commercial) (2007)

Climbing Area	Visitation
Bubba City	moderate
Bridge Buttress	high
Sunshine Buttress	low
Ambassador Buttress	low
Butcher Branch	high
Kaymoor	moderate
Diamond Foot/Cirque	moderate
South Nuttall	low
Beauty Mountain	moderate

Table 3.33

New River Gorge National River
Climbing Use by Outfitters (2007)

Climbing Area	Visitors
Bridge Buttress	3,01
South Bridge	218
Reed Wall	925
Junkyard	1,069
Rams Head (Beauty	468
Endless Wall	795

Table 3.34

New River Gorge National River
NPS Official Hiking Trails
(2007)

Trail	mi.	Trail Standard
High Use Trails		
Kaymoor	8.6	frontcountry/ admin road
Glade Creek	5.6	frontcountry/ admin road
Long Point	1.6	frontcountry
Rend	3.4	admin road
Sandstone Falls Boardwalk	0.2	fully accessible
Southside	7.0	frontcountry/ admin road
Fayetteville	4.0	backcountry
Park Loop	1.1	backcountry
Timber Ridge	1.0	backcountry
Brooklyn Mine	2.7	admin road
Grandview Rim	1.6	developed/ frontcountry
Burnwood	1.2	frontcountry
Canyon Rim Boardwalk	0.1	fully accessible/ developed
Bridge Buttress	0.2	frontcountry
Endless Wall	2.4	frontcountry
Grandview Walkways	1.5	fully accessible/ developed
Tunnel	0.5	frontcountry
Sandstone Falls Overlook	0.1	developed
Junkyard	0.3	climbing spur
Medium Use Trails		
Kaymoor Miners	0.9	backcountry
Castle Rock	0.6	backcountry
Big Branch	2.0	backcountry
Butcher Branch	0.8	backcountry
Arbuckle Connector	0.3	backcountry
Island Loop	0.5	frontcountry
Big Buck	0.9	frontcountry
Craig Branch	2.4	admin road
Low Use Trails		
Church Loop	0.1	backcountry
Little Laurel	2.7	admin road
Kates Plateau	5.1	backcountry
Stone Cliff	2.7	admin road
Gwinn Ridge	1.5	backcountry
New River Br.	0.9	backcountry
Woodland Loop	0.6	frontcountry
Polls Plateau	4.9	backcountry
Kenney Creek	3.0	admin road
Nuttall Mine	0.5	admin road
Nuttallburg Tipple	0.8	admin road
Kates Falls	0.2	backcountry
Terry Top	1.7	admin road

Management Concerns. During the GMP scoping process the public and the NPS identified several concerns related to climbing in the park:

- climbing may adversely impact sensitive cliff habitats and species
- crowding occurs in climbing areas, particularly in the Bridge Buttress area
- how NPS will designate group climbing areas is unclear
- there is a proliferation of unauthorized trails to climbing areas
- parking is inadequate at trailheads used for climbing access
- planned replacement of fixed anchors and how that will occur
- need for more ranger patrols in climbing areas

Most stakeholders acknowledged that these issues will be addressed as the park's *Climbing Management Plan* (NPS 2005b) is implemented.

■ Hiking

Hiking Overview. Approximately 76 miles of official NPS trails provide visitor access to the park's frontcountry and backcountry areas (see Table 3.34). Trails vary from easy to difficult in terrain and from 0.1 mile to 8.6 miles in length. Many of the park's trails were preexisting at the time the NPS acquired property and follow the alignments of now abandoned roads and railroad grades from the park's industrial era. The NPS has constructed several new trails, most notably the Fayetteville trail complex – including the Fayetteville Trail, the Town Park Loop, and the Timber Ridge Trail – which was designed and built with assistance from volunteers and the International Mountain Bike Association (IMBA).

In 2007 approximately 67,900 hikers were counted on the park's official trails. Visitor use of hiking trails in the park is highest in the north end of the park and in the Glade Creek area. Trails at Grandview and at Sandstone Falls are also heavily used.

Management Concerns. During the GMP scoping process the public and the NPS identified several concerns related to hiking in the park:

- the park's trail system does not provide a diversity of trail types that enable different visitor experiences for people of all ages and physical conditions
- the park does not have a clearly defined opportunity for multi-day through the park or loop trail backpacking trip on backcountry trails
- many overlooks that provide dramatic views are not accessible by official park trails or park roads
- the CSX Corporation rights-of-way with active rail traffic block safe and legal visitor access to the river throughout much of the park

- many visitors interested in hiking prefer the experience of hiking on single-track trails to hiking on administrative roads
- adequate parking is not available at trailheads
- in the future trail cooperative trail planning and development by NPS and others should provide for future trail connections from the park to adjoining communities, Babcock State Park, Hawks Nest state Park, the Gauley River National Recreation Area, and other regional trails

Table 3.35

New River Gorge National River
Generalized Trail Standards (for NPS Official Trails)

Trail Type	Standard
Backcountry	generally low use; highly experienced hikers; 18 to 24" width; roots/rocks possible
Frontcountry	medium use; broad range of users; 30 to 36" width; may be uneven surface
Developed	heavy use; less experience hikers; 48 to 60" width; hard surface
Administrative Road	vehicle, biking, and hiking use; 8' width on straight sections; may be gravel
Fully-Accessible	even tread to allow all pedestrian use; 60 to 72" hard surface
Climbing Spur	climbing access trails; 12 to 18" width natural surface
Railroad Grade	railroad bed and existing ties; 48 to 60" crushed stone surface

- **Biking**

Biking Overview. Portions of nine trails are open to bicycles, providing access to a variety of places such as overlooks, the New River, and historic sites in the lower gorge (see Table 3.36). Opening additional new or existing trails to bicycle use will require park-specific planning and the promulgation of a special regulation.

Management Concerns. During the GMP scoping process the public and the NPS identified several concerns related to biking in the park:

- many bicyclists identified the need for additional single-track trails and areas with loop biking trails
- development of new bike trails in the park's rugged terrain will require careful well-planned construction in order to sustain bike traffic with minimum environmental impacts and reduce long-term maintenance needs

Table 3.36

New River Gorge National River
Trail Segments Open for Biking

	mi.
Kaymoor, between the junction of Craig Branch Trail and Butchers Branch	2.2
Craig Branch	2.4
Southside Junction, from Brooklyn Trailhead to Red Ash Island *(now Southside)*	1.4
Thurmond-Minden *(now Rend)*	3.4
Keeney Branch Railroad	3.4
Royal *(now Little Laurel)*	2.6
Nuttall Mine	0.5
Nuttallburg Tipple	0.8
Terry Top	1.7

- **Horseback Riding**

Horseback Riding Overview. Exploring the park by horse or with pack animals occurs only on trails where stock use will not present a safety hazard or other user group conflicts. The 2.7-mile Brooklyn Mine Trail is the only trail in the park that is open to horses and pack animals. The trailhead is at the top of Cunard Road. From the trailhead it ascends via a park administrative road along a section of old strip mine to the former coal mining site of Brooklyn. From Brooklyn the trail continues on to the Brooklyn-Red Ash Trail Trailhead.

Other areas in the park boundary where horses are used include Babcock State park and on private land owned by outfitters.

Management Concerns. During the GMP scoping process the public and the NPS identified several concerns related to horseback riding in the park:

- the park has only one official trail that allows horses and pack animals
- horse use on the park's trails in rugged terrain causes increased soil erosion, muddiness, and gradual trail widening
- development of new equestrian trails in the park's rugged terrain will require careful well-planned construction in order to sustain horse traffic

with minimum environmental impacts and reduce long-term maintenance needs

- **Watching Wildlife**

Watching Wildlife Overview. Opportunities for watching wildlife occur throughout the park from trails, overlooks, park roads, and the river. The most popular wildlife viewing is bird watching, an activity that has become increasingly popular in recent years in the park. The park is globally significant in providing critical habitat for neotropical migratory birds, especially for wood warblers. The bird diversity attracts birders from around the world who come to the park primarily during the spring. Birders seek out diverse habitat within the park to maximize the number of species seen, typically looking for places where they can get to different elevations along rim-to-river routes. The most popular area for birding is the lower gorge from Kenney Creek to the Teays Landing river access, with the greatest concentration of birders visiting the Fayette Station Road corridor.

Management Concerns. During the GMP scoping process the public and the NPS identified several concerns related to wildlife watching in the park:

- better interpretive guides are needed for birders and those interested in watching wildlife in the park
- more facilities that provide rim-to-river hiking and driving experiences would increase opportunities for visitors to view the park's diverse wildlife
- additional trails in the Birds Eye View area would provide better opportunities for birding

- **Fishing**

Fishing Overview. Fishing is one of the most popular activities on the New River. Its fish diversity makes the New River an excellent warm-water fishery (see Section 3.2.5 above). Spring and fall are the best times of the year to fish the New River, when the water is cooler and most fish species are more aggressively feeding. Anglers regularly fish the New River upstream of Sandstone Falls by wading or from the banks or from boats. The New River from the I-64 bridge at Sandstone to Grandview Sandbar is designated "catch and release" for smallmouth bass, largemouth bass, and spotted bass, and is generally fished from boats since there is little road access to the river upstream of Glade Creek. Fishing in the New River downstream of Glade Creek is very popular wherever road access allows fishermen to either hike in or launch a boat, such as along Glade Creek Road or at the river accesses at Brooklyn, Cunard, Fayette Station, and Teays Landing.

Trout fishing occurs in several tributaries to the New River. WV DNR stocks several tributaries with trout (see Table 3.38) and the local chapter of Trout Unlimited stocks the upper stretch of Glade Creek. Upper Glade Creek, including the 3-mile

Table 3.37

New River Gorge National River
New River Fishery

New River Warmwater Fishery – Species Typically Caught by Anglers

- smallmouth bass
- largemouth bass
- spotted bass
- walleye
- muskellunge
- crappie
- bluegill
- carp
- channel catfish

Table 3.38

New River Gorge National River
Annual Trout Stocking Summary

New River Tributaries Stocked Annually by WV DNR with Golden, Rainbow, Brook and Brown Trout

- Meadow Creek
- Glade Creek[1]
- Dunloup Creek
- Glade Creek (at Babcock State Park)
- Mann Creek (at Babcock State Park)
- Mill Creek

[1] *Upper Glade Creek is also stocked by the Glade-Pinch Trout Association*

stretch above the pedestrian bridge, receives heavy put-n-take fishing pressure, especially following stocking. Lower Glade Creek, including the 3-mile stretch from the pedestrian bridge to the New River, has an apparently self-maintaining population of brown trout and is designated "catch and release". Buffalo Creek, which is designated "fly-fishing only", has an apparently self-maintaining population of brook trout.

Visitors can access the river and its tributaries for fishing from the river bank anywhere within the park where the land is owned by the NPS or the state; elsewhere visitors must receive permission from private landowners. Access onto the river for fishing is possible from any of the NPS or state public river accesses within the park. Anglers in the upper gorge most frequently use the Akers, Tug Creek, Hellems Beach, and Camp Brookside public river accesses. Additional popular walk-in fishing spots along the river include Lower Kenney Creek, Middle Kenney Beach, Short Creek, Todd Beach, Lower Stone Cliff, and Bennett Hole.

Fishermen regularly cross over or walk along the active railroad tracks to reach their favorite spots. The upper New between Hinton and Cunard provides many large pools that are often fished from shore, from john boats, and by wading in the river. Fishermen often camp at the established primitive camping areas and also at many undeveloped sites along the river, sometimes for several days. Trout fishing in the tributaries is generally a day use activity. The state currently licenses approximately 60 commercial guides/outfitters to operate on the New River. Commercial outfitters primarily use guided rafts/boats on several sections between Sandstone Falls and Fayette Station.

Management Concerns. During the GMP scoping process the public and the NPS identified several concerns related to fishing in the park:

- introduction of nonnative species of fish and crayfish through bait bucket dumping may threaten native fish populations
- potential impacts of trout stocking on natural fish communities
- the increasing size of disturbed areas and the amount of litter at popular fishing spots with corresponding adverse environmental impacts and loss aesthetic appeal
- existing river accesses do not provide enough fishing access, particularly along the river stretch from Hinton to Sandstone Falls
- the CSX Corporation rights-of-way with active rail traffic block safe and legal visitor access to the river throughout much of the park

- **Hunting**

Hunting Overview. New River Gorge National River when combined with the Bluestone National Scenic River and the Gauley River National Recreation Area

forms the largest public hunting area in southern West Virginia. Hunting is permitted within most of the New River Gorge National River, but is restricted from the former Grandview State Park area and other high use areas. Much of the land still in private ownership within the park boundary is leased to private hunting clubs and is restricted to club member use only.

No research is available describing hunting patterns and hunter intensity at New River Gorge National River (Mahan 2004). However, national and state trends suggest that big game hunting is more likely to occur than small game hunting within the park boundaries (Hooper et al. 2006). Deer hunting probably is the most popular activity, based in part on historical and current hunter numbers, days afield hunting, and hunting expenditures (Hooper et al. 2006). National and state trends also suggest that squirrel hunting is the most popular small game activity (Hooper et al. 2006). Due to small sample sizes within the national surveys, existing information is not sufficient to make firm conclusions about preferences or intensity of migratory bird hunting and other animal hunting within the park boundaries (Hooper et al. 2006).

Recent study of the impacts of hunting in the park indicates that hunting in accordance with applicable state regulations has not caused adverse effects on any of the species of mammals or birds which are or may be hunted and that currently occur within the park boundaries (Hooper et al 2006). Recent study further indicates that no evidence exists to support the position that any other species found within the park boundaries have been affected adversely by hunting (Hooper et al 2006).

Empirical information from park ranger patrols provides an overview of hunting preferences and locations where hunting occurs in the park. Archery and general firearms seasons appear to be more popular deer hunting activities than are antlerless and muzzleloader seasons. There has been a perceived increase in bear, squirrel, grouse, turkey, and rabbit hunting in the park. Upland plateaus and gentler slopes have become increasingly popular as the NPS has acquired additional lands and opened them to the public for hunting. Areas where hunting is concentrated include Highland Mountain, Backus Mountain, Beury Mountain, and the Glade Creek watershed.

Management Concerns. During the GMP scoping process the public and the NPS identified several concerns related to hunting in the park:

- the park offers an opportunity to hunt in an area of the state where hunting lands are disappearing – hunters have expressed interest in keeping portions of the park open for hunting so that the opportunity for this traditional use can be maintained
- additional vehicular access is needed into some areas of the park that are open for hunting

- poor boundary marking in some areas makes it difficult for hunters to know when they are on public land in the park
- during hunting season safety hazards exist in areas of the park where other visitor use is high and hunting is permitted
- the negative impacts of not hunting deer on vegetative communities and some species of birds are far more likely to be significant than are the impacts attributed to hunting deer (Hooper et al. 2006)
- while recreational hunting at this time has negligible impacts on the park's vegetation and wildlife communities, additional research and management planning is needed to assess and monitor wildlife populations that are subject to hunting (Hooper et al. 2006)

- **Driving Scenic Roads**

Driving Scenic Roads Overview. For those who visit the park by private vehicle or bus there are a number of driving opportunities on roads that provide access to the park's scenic resources, as well as take visitors to points of interest where other experiences are offered. Scenic drives in the park follow along the rim, along the river, and from the rim to the river. Vistas from the rim drives offer views of the sandstone walls of the gorge and the river below. At the bottom of the gorge views from the river level drives come and go as visitors travel in and out of forested areas and move to and from the river's edge.

The NPS has designated five roads in the park as scenic drives that it recommends to visitors wanting to see the park by vehicle (see Table 3.39).

Management Concerns. During the GMP scoping process the public and the NPS identified several concerns related to opportunities for driving the park's scenic roads:

- many additional roads in the park are scenic but they are either closed or the public is not encouraged to use them because of safety concerns
- the state of West Virginia has primary authority for four of the five scenic drives, as well as others within the park, and may not always have adequate funding for maintenance and repairs (see Section 3.7 below Park Access)
- maintaining the park's scenic roads – and re-opening scenic roads that are now closed – is difficult and costly due to the rugged terrain and has the potential to cause adverse environmental impacts

- **Discovering Historic Sites**

Discovering History Overview. The opportunity for cultural discoveries at New River Gorge is extraordinary. Park visitors no matter how they explore the park –

Table 3.39

New River Gorge National River
Scenic Drives

WV Route 82 (Fayette Station Road) Rim-to-River through the Lower Gorge

- a 7.5-mile rim-to-rim scenic route along historic Fayette Station Road below Canyon Rim including scenic views of the river, the gorge walls, cliff faces in the Bridge and Sunshine Buttress areas, Wolf Creek, the historic New River Bridge, and the modern New River Bridge (from below)

WV Route 25 to Thurmond

- a 6-mile rim-to-river scenic route from park headquarters at Glen Jean to Thurmond; the road closely parallels Dunloup Creek through the forest, with views of the stream and the forest with a beautiful rhododendron understory

WV Route 41 Rim-to-Rim through the Middle Gorge

- a 61-mile rim-to-river scenic route from park headquarters at Glen Jean to Danese; approximately six miles of the drive are through the park as the route follows the narrow winding Batoff Creek drainage down to the New River at McCreery and Prince and then climbs out of the gorge up the Laurel Creek drainage

Glade Creek Road

- a 6.3-mile gravel road paralleling the New River from WV Route 41 to Glade Creek; passes the scattered foundations of the town of Royal; day use and camping facilities are located at Grandview Sandbar and at Glade Creek, respectively

WV Route 20 to Hinton/WV Route 26 (River Road) to Sandstone Falls

- a 22.5-mile drive from I-64 Exit 139 over Chestnut Mountain to Hinton, across the New River, and along River Road to Sandstone Falls; overlooks of the river and day-use areas are located along the route

Table 3.40

New River Gorge National River
Accessible Facilities

Facilities
Administrative Offices
▪ Park Headquarters Complex
▪ Glen Jean Bank
▪ Burnwood Complex
▪ Grandview Complex
▪ Dunglen Complex
▪ Ranger Stations
▪ Fire and Rescue Caches
Visitor Centers
▪ Canyon Rim Visitor Center
▪ Sandstone Visitor Center
▪ Thurmond Visitor Center
▪ Grandview Visitor Center
Restrooms
▪ all comfort stations at developed park facilities
▪ Sandstone Falls portable toilet
Overlooks
▪ New River Bridge Overlook
▪ Main Grandview Overlook*
Boardwalks
▪ Canyon Rim Visitor Center
▪ Sandstone Falls
Trails
▪ Kenney Branch*
▪ Thurmond-Minden (Thurmond end)
River Access
▪ most NPS developed river access sites*
Sites of Interest
▪ Theatre West Virginia (Grandview)
Developed Campgrounds
▪ 2 accessible sites each at Army Camp and Grandview Sandbar
▪ 2 accessible site to be added at all developed campgrounds
Developed Picnicking Facilities
▪ hardened surface, accessible picnic tables, and accessible grills available at all developed picnicking facilities
Parking Facilities
▪ all parking areas at developed park facilities

** These facilities are marginally accessible and may require assistance from other visitors to reach desired destination*

by car, by foot, by bicycle, or by boat – have opportunities to discover history at sites throughout the park in its remaining communities, in its abandoned town and industrial sites, and in places that are hidden within the forest and scattered throughout the gorge. Most sites are ruins of former industrial and settlement sites that have the potential to tell the park's stories related the coal, lumbering, railroading, and early settlement.

Management Concerns. Concerns identified during the GMP scoping process related to visitor opportunities for discovering the park's historic sites include:

- poor access restricts or prohibits potential cultural resource discoveries in remote areas of the park
- opportunities for visitors to learn from cultural resource discoveries in remote areas of the park are limited due to lack of interpretive materials
- unrestricted visitor access to cultural resources in remote areas of the park has the potential to expose resources to damage and/or vandalism and to attract visitors to potentially hazardous situations

3.6.3 Opportunities for Visitors with Disabilities

■ Accessibility Overview

The NPS is committed to implementing all practicable efforts to make NPS facilities, programs, services, employment, and meaningful work opportunities accessible and usable by all people, including those with disabilities. Accordingly, most administrative offices, some overnight visitor accommodations, and most interpretive and visitor service facilities will be accessible (NPS 2006a). Undeveloped areas, such as those outside the immediate influence of buildings and roads, will not normally be modified (NPS 2006a).

In accordance with NPS policy, the park has made numerous improvements to park facilities in recent years to enhance accessibility. Today, most developed visitor facilities at New River Gorge are generally accessible to visitors and employees with disabilities (see Table 3.40). While river access is generally possible for disabled paddlers and fishermen, the uneven surface of the boat ramps inhibits wheelchair access and generally requires disabled visitors to be assisted when getting onto boats. Floodproofing required for structures along the river's edge severely limits improvements that can be made to enhance disabled access for fishing.

■ Accessibility Management Concerns

Concerns identified during the GMP scoping process related to accessibility include:

- few opportunities exist for disabled visitors to access the river for fishing and camping

- few opportunities exist for disabled visitors to experience safe river trips of different lengths and levels of difficulty
- visitor center exhibits are not currently accessible for the seeing- and hearing-impaired
- limited vehicular access in some parts of the park reduces the areas where disabled visitors can hunt

3.6.4 Special Events and Special Uses

- **Bridge Day**

Bridge Day is an annual festival that began in 1977 and has evolved into one of the largest festivals in West Virginia. The Bridge Commission hosts the event on the 3rd Saturday of October. Each year as many as 100,000 people crowd onto the New River Bridge to view approximately 450 BASE jumpers propelling themselves from the bridge and landing in or near the New River flowing 876 feet below. During the festival the bridge and most of Fayette Station Road is closed to the general public for motor vehicle traffic.

- **Theatre West Virginia**

Theatre West Virginia has presented outdoor summer theatre at the Cliffside Amphitheatre at Grandview since 1960. The organization was founded by concerned citizens from the Raleigh County region who desired to present West Virginia's unique culture to as wide an audience as possible. The theatre is known for its traditional performances of the *Hatfields & McCoys* and *Honey in the Rock*, and in recent years for special performances of Phil Dirt and the Dozers. In 2007 approximately 24,400 visitors attended the various Theatre West Virginia shows (15 percent fewer than attended in 2005).

- **Races**

Since the late nineties various groups have hosted adventure races, triathlons, downriver races, and bike races in the park. Adventure races typically include around-the-clock orienteering with hiking, biking, paddling, and rappelling. Five to ten races have occurred per year, ranging in size from approximately 30 to 200 athletes. In 2007 seven races occurred involving approximately 1,155 total athletes.

- **Commercial Use Permits and Special Use Permits**

In 2007 the NPS processed 42 requests for short-term commercial uses and issued 26 authorizations. Most were for climbing (15), biking (3), and hiking (3). Approximately 8,000 people visited the park as a result of the authorizations.

In 2007 the NPS processed 135 requests for short-term special use permits and issued 83 permits. Most were for camping (28), group climbing (18), demos (7), and races (6). Approximately 48,000 people visited the park as part of the

Table 3.41

New River Gorge National River
Activities Requiring a Special Use or Commercial Use Permit

Activities
▪ non-commercial group climbing (>10)
▪ non-commercial group biking (>10)
▪ non-commercial group hiking (>10)
▪ non-commercial group horseback riding (>10)
▪ non-commercial group tours (>10)
▪ group camping at Burnwood and Dunglen
▪ picnic shelter use at Burnwood, Dunglen, and Grandview
▪ events involving staging support personnel along the route
▪ events charging a fee for participation
▪ demos/training sessions
▪ races and/or marathons
▪ weddings
▪ first amendment activities
▪ agricultural use
▪ rights-of-way

permitted uses (exclusive of Bridge Day visitors). NPS also has a few long-term special use permits for driveway access to private property and for entrance through locked gates to family cemeteries. There is currently one long-term special permit for agricultural use (haying).

- **Special Events Management Concerns**

Concerns identified during the GMP scoping process related to special events include:

- special events and commercial/special uses often require substantial commitments from personnel to process permits, manage, and monitor events
- special events and commercial/special uses can lead to resource impacts and conflicts with other visitors

3.6.5 Visitor Orientation, Interpretation, and Education

- **Pre-Visit Information and Orientation**

Visitors planning their first trip to New River Gorge National River primarily rely on information obtained from friends and relatives who have been to the park, the internet, and travel guides and tour books (Manni et al. 2005). Other sources of information used less frequently include commercial outfitters, the West Virginia travel center, and newspaper and magazine articles (Manni et al. 2005). The park website used by approximately 18 percent of visitors in advance of a trip provides directions to the park and includes a variety of information useful for trip planning, such as park activities, interpretive programs, downloadable maps, and general park management news.

- **On-Site Information and Orientation**.

Visitor Centers. The park Interpretation Division manages four visitor contact facilities. Canyon Rim and Sandstone are open year round, seven days a week, except for Christmas and New Years Day. In the summer, from June to August and on weekends through October smaller visitor centers are open at the Thurmond Depot and at Grandview when staff is available. At the visitor centers visitors see exhibits, shop at the park stores, and learn about activities, such as ranger-led tours, self-guided tours, and recreation opportunities. Approximately 43 percent of the park's visitors use the information available at the visitor centers from the information desk and exhibits to become oriented to the park (Manni et al. 2005).

Park Publications. Most visitors to the park rely on the park brochure for basic information on attractions, recreation opportunities, and travel directions. The *Three Rivers Review*, the park visitor guide features articles on resource management projects, current events, maps, and other information helpful to those planning a visit or already at the park. Pamphlets address the needs of mountain bikers, rock climbers, campers, and fishermen. The staff also compiles and prints

lists of area outfitters and accommodations. A full-color, four-panel brochure is offered to visitors at state welcome centers and tourism locations throughout the region.

Park Bulletin Boards and Information Boards. Boards located throughout the park include standardized "You are Here" map boards and more than forty large bulletin boards and kiosks, as well as fifty smaller "birdhouse" bulletin boards and brochure racks.

Signage. Visitors come to the park on many regional and local roads, many of which are narrow winding mountain roads. The NPS and WV Division of Highways have cooperated to provide signage on regional roadways and on local roads that provide access to heavily used visitor facilities. Many areas remain poorly signed causing confusion for some visitors not familiar with the area.

- **Interpretive Media**

Visitor Center Exhibits. The park's visitor centers offer a variety of permanent interpretive exhibits as well as rotating seasonal exhibits. The native plant gardens at Sandstone and Canyon Rim Visitor Center greatly improve the aesthetic appearance of the areas, naturally promoting the value and beauty of native plants in landscaping.

Wayside Exhibits. Wayside exhibits are in place at Kaymoor, Canyon Rim, Thurmond, Grandview, Sandstone Falls, along Fayette Station Road, and in Glen Jean.

Publications. A variety of publications provide interpretive information for natural resource areas, historic sites, and scenic resources. These include: a scenic driving tour brochure; brochures for the Sandstone Falls, Grandview, and Fayette Station areas; trail brochures for different parts of the park; a walking tour brochure for the Thurmond Historic District; and, an audio guide to Fayette Station Road, available on loan in CD or tape formats.

- **Interpretive Programs**

Walks and Talks. Ranger walks and talks are held mostly in the spring through fall seasons, and are publicized on the park website and in the local media. Some programs are held indoors and others on the grounds of visitor centers or out on trails or by the river. Topics include archeology, endangered species, water quality, wildflowers, bird walks, as well as basic armchair introductions to popular recreational activities, such as whitewater boating and climbing. Sessions are held on Leave No Trace ethics, and what to do if you're lost in the woods. Popular programs feature former coal miners talking about living and working in the gorge. Astronomy walks draw audiences appreciative of the park's night sky. Ranger on a Rock and Ranger's Choice are informal programs that adapt to the audience. They

capture interpretive moments with visitors who might not be inclined to attend a more formal presentation.

The Interpretation Division offers natural and cultural resources education programs to school groups and community organizations as an onsite visit or as an outreach program in the classroom. The programs provide hands-on opportunities for learning and promote the protection of natural and cultural resources within the park and the environment as a whole. All programs support the Instructional Goals and Objectives for West Virginia Schools.

Junior Ranger Program. The Junior Ranger Program is available for students and families who visit the park. The booklets can be picked up at any park visitor center and provide youngsters ages 6-12 an enjoyable and meaningful way to explore the resources and history of the park. Upon completion of the program, junior rangers receive a certificate and patch.

Special Request Out-of-the-Park Programs. These programs include seasonal weekly Bluestone Walks at Pipestem Resort State Park, Wildflower Weekend, at Babcock State Park; Tellebration, an annual national storytelling event, and Kultural Kinnikinnick, an all-day celebration for National American Indian Heritage Month, both presented at Tamarack; participation in the area Migratory Bird Festival, as well as night sky and endangered wildlife programs presented at nearby state parks. West Virginia Conservation Camp provides teenagers with skills and interdisciplinary career contacts with rangers and managers from many agencies. The Division of Interpretation also participates in local parades, designing floats for specific parade themes and highlighting the NPS connection to local communities. Other special activities included the creation and staffing of displays for National Park Week, Earth Day and National Trails Day at the State Capitol.

Informal Contacts. Informal contacts with rangers occur during Bridge Day, on the New River Train fall foliage excursion trips, and Railroad Days. These are excellent opportunities to increase visitor understanding and appreciation of the park. For example, over 1,000 people a day interact with park rangers on each of the four New River Train trips each fall. Roving contacts are also made within the park throughout the year, on trails, in parking lots, and river access areas. The Ranger on the Rock prior to Theater West Virginia performances is another opportunity for visitor contact.

- **Educational Programs**

K-5th Grade Environmental Education. Environmental education is offered directly in the classroom and incorporates concepts taught at each grade level. Programs focus on the natural history or cultural heritage of the New River Gorge and southern West Virginia. A park ranger visits each classroom of participating elementary schools in the fall and again in the spring to present a one-hour

program. Topics are national parks (K), habitats (grade 1), communities (grade 2), ecosystems (grade 3), West Virginia history (grade 4), United States history and preservation (grade 5), and responsible action (grade 6).

Water Resources Program. The Water Resources Program promotes appreciation of water with a focus on current and critical issues related to water quality within the New River watershed. The six-week program includes a weekly ranger presentation with curriculum activities for the following units: the New River watershed, water and people, point and non-point source pollution, water quality, aquatic species, and protecting our water resources.

Environmental Education in the Park. This program includes the annual Children's Water Festival in September. Students from local schools and colleges come to the park for hands-on water quality education and experience. All programs support the Instructional Goals and Objectives for West Virginia Schools.

Several other programs are schedule by request periodically and are intended primarily for a young adult and older audience. For example, several multi-day Leave No Trace Train-the-Trainer courses have been taught to local scout leaders, NPS and state park employees, and river and rock climbing outfitters. The park is currently working with the West Virginia Outfitters to develop and present a guide training seminar and resources materials.

3.7 Park Access

3.7.1 Road Access

- **Regional Road Access to the Park Vicinity**

Visitors to New River Gorge National River use a number of interstate highways to reach southern West Virginia, where they connect to smaller US roads and/or state roads that take them to Fayette, Raleigh, and Summers Counties. Interstate 79 (I-79) provides access from Pennsylvania and western Maryland. Visitors from Baltimore, Washington, and Virginia arrive in West Virginia on Interstate 64 (I-64). Those coming from Ohio and Charleston, WV, use I-77.

- **Local Road Access to Park Facilities**

Local Access Overview. Within the park's 53-mile river corridor a network of public and private roads provide access to the park from adjoining areas of Fayette, Raleigh, and Summers Counties (see Figure 3.11 and Appendix F, Table F.4). Many lead to areas above the river on the plateau and rim. Less common are river level roads, which largely occur in the Upper Gorge on river right from Hinton to Meadow Creek and on river left from Hinton to I-64, as well as in the Middle Gorge along river left from Glade Creek to Terry. Roads open for public use that travel from the rim to the river are least common.

Most roads in the park are WV state and county roads and are generally paved or gravel maintained (see Appendix F, Table F.4). NPS has only a few official park roads that are open to the public (see Appendix F, Table F.4 and Figure 3.11); most NPS roads are administrative roads used for maintenance and emergency access open to the public only for hiking and some biking. Glade Creek Road, the Cunard Access Road, and the Turkey Spur Overlook Road at Grandview are the most heavily used NPS official roads.

Planned highway improvements in the next five years to state and federal roads within the park include routine maintenance to the New River Bridge, resurfacing of I-64, reconstruction of the New River bridges at Thurmond and Prince (WV State Route 41), and reconstruction of the Dunloup Creek Bridge (WV County Route 25) (WV DOT 2005, 2005 – 2006, and 2007). Construction of the New River Parkway on river left from above Sandstone to Hinton, including a bridge across the New River, is currently in final engineering design.

Local Access Management Concerns. Despite the availability of roads in many areas, access is perceived by many visitors to be poor and to limit where they can go and the experiences they can have in the park. Constrained access is largely the result of the difficulty in building and maintaining safe roads in the gorge:

- roads in rugged terrain are susceptible to recurring damage from slumping and slides and roads at river level are susceptible to recurring damage from flooding
- new road construction and routine road maintenance in rugged terrain has the potential for adverse impacts to natural resources and is costly
- existing roads in rugged terrain are typically narrow and steep with rough surface conditions making them difficult to drive and potentially hazardous to visitors not experienced with driving in mountainous areas
- steep gradients, tight turns, and narrow travel lanes on some state and park roads is hazardous for large vehicles, such as buses, vans, and equipment trucks
- some WV county roads pose particular safety threats because they are no longer maintained by the state yet some visitors continue to use them

Additionally, many visitors to the park – particularly local residents – would like to use ATVs for access but ATVs are not permitted on NPS-owned lands or on NPS roads. Under current state law, within the park boundary visitors may operate ATVs on state roads and on private property (with the owner's permission), but visitors rarely make that distinction frequently leading to impacts on park resources.

KEY

State Roads
- Primary State Road (Paved)
- Secondary State Road (Paved)
- State Maintained Gravel Road
- Not Maintained Road

Private Roads
- Private Road

National Park Service Roads
- NPS Maintained Gravel Road

Trails
- NPS Official Trail
- Other Trail

New River Gorge Scenic Drives
- New River Gorge Scenic Drives

Parking
- Existing Public Parking (meets demand 80% of the time)
- Existing Public Parking (does not meet demand 80% of the time)
- Other Locations where Visitors Park (no facilities provided)

Visitor Use Sites Where Legal Access Currently Does Not Exist
- Visitor Access Requires Crossing Active Rail Lines or Private Property

Land Ownership
- NPS land within National River Limits
- State Park Land within National River Limits
- Scenic Easement
- Private Land within National River Limits

BECKLEY
PROSPERITY
BRADLEY
PINEY VIEW
MOUNT HOPE
STANAFORD
OAK HILL
FAYETTE COUNTY
FAYETTEVILLE
ANSTED
CSX Railroad
McCreery River Access
Terry Army Camp
Thurmond/Minden Trailhead
Southside Junction Parking Area
Dun Glen Camping & River Access
Thurmond Depot Visitor Center
Stone Cliff Camping & River Access
Grandview Overlook & Trailhead
Prince
McKendree
Mill Creek
Glade Creek Trailhead
Quinnimont
Grandview Sandbar River Access
Thayer River Access
Glade Creek
Glade Creek Campground
Bragg
Backus
Brooklyn-Southside Junction Trailhead
Cunard Trailhead Parking Area
Cunard River Access
Cunard Fishing Access Parking
Bridge Trailhead
Wolf Creek Trailhead
Bridge Trailhead
Bridge Buttress Parking
Longpoint Trailhead
Fayette Station River Access
Burnwood Overlook
Kaymoor Top Trailhead
Kaymoor Mine Site
Kaymoor
Canyon Rim Visitor Center
Fern Creek Parking Area
Nuttall Parking Area
Nuttallburg
Meadow Creek River Access
Sandstone Falls Takeout
Sandstone Falls River Access
Sandstone Falls Overlook
Hellems Beach River Access
Brooks Falls Day Use Area
Tug Creek River Access
Camp Brookside River Access
Gwinn Ridge Trailhead
Sandstone Visitor Center
New Richmond
Danese
HINTON
Akers River Access
SUMMERS COUNTY
MEADOW BRIDGE

Figure 3.11

PARK ACCESS

New River Gorge National River

WEST VIRGINIA

National Park Service US Department of the Interior

N

0 mi. 1.5 mi. 3 mi. 6 mi. 9 mi. 12 mi. 15 mi.

3.7.2 Trail Access

- **Hiking, Biking, and Equestrian Trails in the Park**

Section 3.6.2 above – Opportunities for Exploration, Adventure, Discovery, and Solitude – provides an overview of the park's existing hiking, biking, and equestrian trails and related management concerns.

- **Connections to Trails Outside the Park**

The NPS has cooperated with the town of Fayetteville to provide trail connections from the town to the park in the vicinity of Fayetteville Town Park. This is the only location where official NPS trails make connections to trails outside the park that connect to adjoining communities or other attractions.

3.7.3 Parking

- **Visitor Parking Overview**

The NPS provides parking at all developed visitor use facilities (see Figure 3.11). In remote locations where visitors access the park for hunting, fishing, hiking, and backcountry camping the NPS provides designated parking where publicly-owned land is available within the park boundary and where site conditions make development of parking feasible.

- **Visitor Parking Management Concerns**.

Many locations within or adjoining the park used by visitors for access have no parking facilities or do not have adequate parking to meet visitor demand more than 80 percent of the time (Figure 3.11).

The NPS faces three primary parking challenges in providing adequate parking in these locations:

- the park's rugged topography makes it impossible to develop more parking
- land suitable for parking remains in private ownership
- land suitable for parking is located near the park but outside the boundary

One or more of these conditions exist at most locations where parking is not available or inadequate to meet demand.

3.7.4 State-Designated Scenic Byways and Backways

WV DOT has designated six scenic byways and seven scenic backways across the state, including the Glade Creek Road Scenic Backway in New River Gorge National River. Byways and backways provide access to numerous cultural, historical, natural, recreational and scenic sites. Typically popular activities along byways and backways include hiking, camping, picnicking, biking, fishing, viewing historic sites, and scenic driving. A scenic backway is similar to a byway but offers a slower pace, in a more intimate relationship with the land.

3.7.5 Transit Access to the Park

■ Mass Transit Overview

Private bus companies, schools, commercial outfitters, and visitor user groups provide mass transit access to the park. In 2007 approximately 1.2 percent of the park's visitors – or 14,560 people - traveled to the park by tour bus. Many others arrived in small vans and buses owned and operated by church groups, scout troops, and other groups visiting the park. Visitors using commercial guiding services for paddling, climbing, and biking mostly traveled to and from outfitter base camps via bus. In 2007, 9.0 percent of the park's visitors – or 106,109 people – traveled by bus with whitewater outfitters to and from the park's public river accesses.

■ Mass Transit Management Concerns

Three primary challenges to the use of mass transit exist in the park:

- rugged topography and narrow roads limit the areas where mass transit vehicles can safely operate
- rugged topography constrains the space suitable for maneuvering and parking mass transit vehicles at heavily used sites
- the seasonal nature of the potential demand for mass transit probably limits the feasibility of commercial shuttle services in the park to summer weekends and to very few locations, such as the Fayette Station area

These issues are most problematic at river access facilities – particularly McCreery, Cunard, and Fayette Station – and in climbing access areas. Two locations where the NPS is exploring potential use of mass transit for rim-to-river travel to alleviate crowding on peak visitation days are from Cunard Top to the Cunard River Access and from Canyon Rim to Fayette Station.

Table 3.42

New River Gorge National River
CSX Corporation Rail Lines through the Park

Rail Lines
▪ **CSX Mainline** –
- along the New River, on river right through the park
- along the New River, on river left from Cunard downstream
▪ **CSX Corman Line**, along Dunloup Creek from Mt. Hope to Southside Junction
▪ **CSX Meadow Creek Line**, along Meadow Creek from Meadow Bridge to Meadow Creek
▪ **CSX Piney Creek Spur Line**, along Pine Creek from WV State Route 61 to Glade Creek Road

3.7.6 Freight and Passenger Rail Service

■ Freight and Passenger Rail Service Overview

The CSX Corporation owns several railroad rights-of-way through the park and operates frequent freight service on most of them (see Table 3.42). The CSX Mainline runs at the river level through the entire park on river right as well as on river left from Cunard downstream. Frequent freight and coal trains move daily on the Mainline through the park. Trains also frequently stop in the park at sidings at Thurmond and Meadow Creek and at yards at Hinton and Quinnimont.

AMTRAK uses the CSX Mainline tracks to provide passenger service three times a week on the Cardinal from New York to Chicago via Charlottesville, with regular stops at Prince and Hinton and a flag stop at Thurmond.

On two weekends in October the Collis P. Huntington Railroad Historical Society operates fall foliage trips for visitors on the New River Train using CSX tracks from Huntington to Hinton, typically with stops at Thurmond and Prince.

- **Freight and Passenger Rail Service Management Concerns**

Four primary issues relate to freight and passenger rail service through the park:

- legal pedestrian and vehicular access across the CSX right-of-way exists only where public roads cross the tracks
- at many locations in the park visitors frequently illegally cross the CSX right-of-way on foot at many locations to reach the river, exposing themselves to potential injury from passing trains (see Figure 3.11)
- freight trains transport hazardous materials through the park that would endanger park resources and visitors in the event of a spill
- at this time passenger train service is infrequent and does not afford a viable means for visitor travel to the park

3.8 Park Operations

3.8.1 Operational Staffing and Funding

The U.S. Government Accountability Office (GAO), in its report *Major Operational Funding Trends and How Selected Park Units Responded to those Trends for Fiscal Years 2001 through 2005* (US GAO 2006), noted that " . . . each [National Park] unit experienced an increase in daily operations allocations, but most experienced a decline in inflation-adjusted terms. " Congress later confirmed the GAO findings, noting in the House Report for Fiscal Year 2007 Appropriations Bill for the NPS that "Unfortunately, because of inadequate budget requests, the parks have had to absorb $61,000,000 over the last six years in mandatory pay costs. This figure is exclusive of other costs impacts cited by GAO including unfunded retirement and health benefit increases, and mandates for homeland security and information technology security."

New River Gorge National River has experienced these trends just as other parks have, and therefore the park has not been able to replace staff vacancies that have arisen over the past several years. In addition, inflation on fixed costs items, such as utilities, supplies and materials have also meant that permanent and seasonal staff has been reduced. Of the 160 full-time employees (FTE) in the park's approved organizational chart, only 118 FTE are currently filled. All functions have been operating with declining numbers of staff as well as inadequate funding for non-personnel expenses. The unfilled positions are needed to staff, protect and maintain the trails, campgrounds, visitor centers, and grounds comprising the park, and work needed complete necessary science, resource management and stewardship work. A complicating factor is that New River Gorge National River, by

legislation, also manages the Gauley River National Recreation Area and the Bluestone National Scenic River. Although there is separate funding for these parks, the funding does not cover their costs of operation, and the New River Gorge National River budget subsidizes them. In 2008, the budget for the three units was $8,024,944.

3.8.2 Operations Facilities and Infrastructure

- **Overview of Operations Facilities and Infrastructure**

Park Headquarters Complex. The park superintendent, deputy superintendent, and senior management staff direct overall park operations from the Glen Jean Park Headquarters Complex. The headquarter complex includes administrative offices, operations offices, a water quality lab, storage buildings, garages, and outdoor storage areas. The rehabilitated Glen Jean Bank is located adjacent to the headquarters complex and provides additional office space, a community meeting room, and storage for the park's collection.

Interpretation and Visitor Services Facilities. The Chief of Interpretation and supporting administrative staff manage the park interpretive and visitor services from park headquarters. Park rangers manage programs in the Southern Division and the Northern Division from the Canyon Rim Visitor Center and the Sandstone Visitor Center, where most interpretive staff are based. The park's four visitor centers are the primary visitor contact facilities and include administrative and storage facilities to support the park's interpretive programs.

Visitor and Resource Protection Facilities. The Chief Ranger manages the visitor and resource protection staff from administrative offices at park headquarters. Protection operations in the field are managed from the Southern Division Office at Grandview and the Northern Division Office at Burnwood. Rangers and river patrols operate from ranger stations at Camp Brookside, Grandview, Dun Glen, and Burnwood. Rescue caches with boats, motors, and swiftwater rescue equipment are maintained at Camp Brookside, McCreery (Orville Store), Dun Glen, and Burnwood. Fire-fighting operations are administered from the Grandview Fire Office, with fire caches maintained at Grandview and Glen Jean.

Operations Facilities. The Chief of Maintenance manages the park's maintenance operations from park headquarters. The park's road and trail crews are also based at Glen Jean where facilities supporting their operations include offices, storage buildings, garages, and outdoor storage areas. Other routine maintenance operations are managed from the Southern Division Office at Grandview and the Northern Division Office at Burnwood. At Dun Glen an additional maintenance complex supports specialized maintenance needs, including the park's auto shop, welding shop, carpenters shop, and painters shop. The Sandstone Visitor Center complex includes a small maintenance building that is used during summer months as a base for seasonal staff working in the south end of the park.

Park Housing. Housing for park staff includes six dormitory rooms in a building adjoining the Dun Glen Maintenance Complex. Seasonal employees and NPS staff temporarily training at the park use the rooms.

Water Supply and Wastewater Treatment Facilities. The park operates three wells and small water distribution systems for NPS use at the Sandstone Visitor Center, the Thurmond Depot Visitor Center, and the Dun Glen Maintenance Complex and dormitory. An NPS tertiary wastewater treatment facility at Burnwood treats wastewater from the Canyon Rim Visitor Center and facilities at Burnwood, including the group picnic site and operations and visitor protection facilities.

Park Roads and Parking Facilities. (See Sections 3.7.1 and 3.7.2 above.)

- **Operations Facilities Management Concerns**

Two considerations inform management decisions regarding operations facilities and infrastructure, referred to as "assets" by park managers:

- the asset's relative importance (assessed in relation to the park's purpose and expressed through the its asset priority index (API))
- the asset's condition (assessed at a particular point in time and expressed through its facility condition index (FCI))

The relationship between the two considerations defines the appropriate actions needed to protect each asset. In general, assets fall into one of four categories (see Table 3.43). NPS policy regarding future public investment is generally: 1) to focus on the highest priority assets that are in the poorest condition (Category 2 assets), and 2) conversely, to avoid further public investment in low priority assets, particularly if they are in poor to serious condition (Category 4 assets).

Table 3.43

New River Gorge National River
Generalized Park Asset Analysis Categories

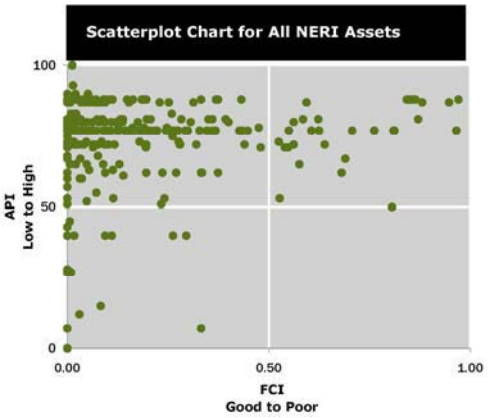
	Priority*	Condition
1	high to moderate	good
2	high to moderate	fair to poor
3	fair to poor	serious
4	low	all conditions

** Priority expressed in relation to the park's purpose*

Figure 3.12 presents a graphic summary of the findings from the analysis of park assets. Following are the major findings from the analysis:

Figure 3.12

New River Gorge National River
Park Asset Analysis – Summary of Findings



Finding 1. Most of the park's buildings, trails, river access points, and other assets have a high relative importance and are in fairly good condition. The park recently decommissioned and removed structures with low importance and poor condition, which improved the overall condition of the park's asset portfolio.

Finding 2. Some of the assets with low importance but relatively good condition are storage buildings used to stockpile boats and emergency equipment in various locations throughout the park. Although the sheds themselves do not have a high priority, the function they serve is important to the park's emergency operations. Most of the remaining low importance assets are federally-owned lots without structures in some of the communities within the park.

Finding 3. Assets with a high importance but in poor condition are of various

types, and include some of the park's most historic structures, such as historic structures at Nuttallburg.

Finding 4. The park is completing emergency and short-term stabilization work on assets at Nuttallburg which will improve their condition. Other assets at Thurmond, Camp Brookside, and the Harrah Homestead compose most of the remaining assets with a high importance but in poor condition. The NPS has funding to improve the condition of three of these structures so that they can be used for park housing. Strategies for use of the balance of assets in poor condition are under consideration by park managers.

3.8.3 Partnerships

- **Entities who Help the NPS Achieve its Mission at New River Gorge**

New River Gorge National River has many successful partnerships with organizations, state and local governments, and other federal agencies that help to accomplish the park's mission (see Table 3.45). Through these relationships the park has received valuable assistance in the form of educational programs, visitor services, living history demonstrations, emergency services, habitat restoration, scientific and scholarly research, and other benefits.

Table 3.44

New River Gorge National River
Volunteers In Park Program Participation

	Volunteers	Hours Donated
2007	282	9,760
2006	240	8,676
2005	249	7,840
2004	271	5,456
2003	227	5,323

- **Volunteers**

Volunteering is an American tradition that the NPS recognizes is vital to the success of its parks. At New River Gorge National River the Volunteers In Parks (VIP) program coordinates voluntary help and services from the public. In 2007 approximately 280 volunteers donated approximately 10,000 hours of service to the park. Site volunteers provided assistance with a variety of park functions, such as: maintenance of the park's curatorial collection; resource management projects (e.g., the peregrine falcon reintroduction, bird banding, bat surveys, environmental monitoring, archeological site documentation); the Adopt-A-Trail maintenance program; oral history interviewing; environmental education programs; the Park Ambassador Program at visitor centers and day use areas; and facilities maintenance.

Several issues relate to the use of volunteers in the park. NPS supervisory staff need to better define the tasks that could be performed by volunteers in the park as well as make time available to train volunteers. Very limited park housing is available for individual volunteers wanting to work in the park for several months. It is difficult to find local, long-term volunteers wiling to commit to a regular work schedule.

Table 3.45 Entities that Help the NPS Accomplish its Mission at New River Gorge National River

Entity	Type of Agreement and General Provisions
■ **Eastern National**	Eastern National provides visitor services for the park by helping to operate a bookstore in four of the park's visitor centers. Sales generated from the bookstores enable Eastern National to make donations to the NPS.
■ **National Parks Conservation Association**	NPCA is a non-profit organization whose mission is to protect and enhance America's national parks for present and future generations. From its West Virginia Field Office in Fayetteville, NPCA works to strengthen the relationships between the park and its neighboring gateway communities with the goal of working cooperatively and proactively to protect park resources and community character.
Emergency Service Providers	
■ **Law Enforcement** - **WV State Police** - **County Sheriffs** - **Local Police Departments** - **Trilateral Drug Enforcement Network Team (TRIDENT) Task Force** - **WV Department of Natural Resources (WV DNR)**	New River Gorge National River is a concurrent jurisdiction park. NPS has enforcement jurisdiction on federal land. NPS, WV State Police, WV DNR, and local police departments have agreements to assist one another when needed. The WV State Police and the county sheriffs retain rights to police and operate inside the park and have enforcement jurisdiction on all private property. NPS provides emergency law enforcement on federal land inside the park and on private land inside and outside the park when assistance is requested or if there is a bona fide emergency situation. TRIDENT Task Force provides federal drug law enforcement. WV DNR Law Enforcement is responsible for enforcement of the state's game and fish laws and rules and laws relating to littering, pleasure boating, and whitewater rafting.
■ **Emergency Services/Search and Rescue** - **Local Ambulance Companies** - **HealthNet Aeromedical Services**	NPS and local volunteer and paid professional ambulance companies have mutual aid agreements to provide emergency medical services and search and rescue services in the park. HealthNet Aeromedical Services provides 24-hour emergency air transport services support the local emergency medical service providers serving the park.
■ **Fire Protection/Search and Rescue/Hazardous Material Incidents** - **Local Volunteer and Paid Professional Fire Companies**	NPS and local volunteer and paid professional fire companies have mutual aid agreements to provide fire protection and search and rescue services in the park. Local providers fight all structural fires in the park. NPS fights wildland fires with assistance when needed from local providers. NPS relies on local fire departments to handle hazardous materials incidents inside the park.
Economic Development and Tourism Organizations	
■ **Economic Development** - **Region 1 Planning and Development Council** - **Region 4 Planning and Development Council** - **4-C Economic Development Authority (4-C EDA)**	Region 1 (Summers and Raleigh Counties) and Region 4 (Fayette County) Planning and Development Councils provide comprehensive planning of all types to communities, coordinate federal and state funding, provide technical assistance to local government, and promote regional cooperation. The 4-C EDA's mission is to assist with the expansion and diversification of the economic base in Summers, Raleigh, Fayette and Nicholas Counties. The PDCs, the 4-C EDA, and the NPS work cooperatively to promote public awareness of the park as a unit of the national park system, to attract visitors to the region, to provide information to visitors, and to promote public understanding of the positive impacts of the park on the quality of life in local communities.
■ **Tourism** - **Southern WV Convention and Visitors Bureau** - **Local Chambers of Commerce and Visitors Bureaus**	The NPS works cooperatively on many initiatives with local chambers of commerce and convention and visitors bureaus. Initiatives focus on improving awareness of the park as a unit of the national park system, attracting visitors to the region, providing information to visitors, improving wayfinding from local communities to the park, and developing visitor support services in gateway communities.

Table 3.45 Entities that Help the NPS Accomplish its Mission at New River Gorge National River

Entity	Type of Agreement and General Provisions
■ **Coal Heritage** - **National Coal Heritage Authority (NCHA)** - **National Coal Heritage Trail (NCHT)**	NCHA and the NPS are partners in planning and implementing coal heritage area activities through a cooperative agreement that identifies mutually shared goals. NPS is on the NCHT's interpretive planning development team and serves as the legal vehicle through which federal funds are passed to the NCHA.
■ **Tamarack Foundation**	Tamarac and the NPS work cooperatively to promote public understanding of West Virginia's cultural heritage and awareness of New River Gorge as a unit of the national park system. Tamarack makes information about the park available to travelers and frequently hosts NPS special events and interpretive programs.
■ **Bridge Day Commission**	The Bridge Day Commission hosts the annual Bridge Day base jumping event in cooperation with the NPS, the Fayette County Chamber of Commerce, and other local, state, and federal agencies that provide services supporting the event. Bridge Day attracts over 100,000 visitors and helps promote awareness and understanding of the park as a unit of the national park system.
Natural Resource Organizations	
■ **National Committee on the New River (NCNR)**	NCNR is dedicated to protecting and enhancing the natural and cultural resources of the New River throughout its watershed. The NCNR's Land Trust Program and the NPS are exploring the potential for NCNR to work with landowners to secure conservation easements on private lands within the park boundaries.
■ **Water Quality Management Groups** - **West Virginia Rivers Coalition (WVRC)** - **Plateau Action Network (PAN)** - **Dunloup Creek Watershed Association (DCWA)** - **Piney Creek Watershed Association (PCWA)**	WVRC seeks to conserve and restore West Virginia's exceptional rivers and streams. PAN is a non-profit citizens coalition working with the community to promote responsible economic development and environmental management in Fayette County. DCWA is committed to improving the lives of residents of the Dunloup watershed who are impacted by flooding along Dunloup Creek. PCWA's goal is to improve and protect the water resources within the Piney Creek watershed by educating the community about water quality issues and by performing service projects. WVRC, PAN, DCWA, PCWA, and the NPS work cooperatively by sharing data, discussing positions on, and potential solutions to, relevant issues, and working to generate support of actions that improve water quality and water-related quality of life.
■ **Glade-Pinch Trout Association**	The Glade-Pinch Trout Association assists the NPS and the WV DNR with trout stocking in Glade Creek, typically including eight spring and two fall trout stockings.
■ **Birding Groups** - **Three Rivers Aviation Center (TRAC)** - **Bibbee Nature Club** - **Partners In Flight (PIF)** - **Brooks Bird Club**	TRAC is a bird rehabilitation and education center which provides support to the park's Interpretation and Resource Management Division via educational programs and technical expertise on avian health and falcon restoration. The Bibbee Nature Club is a membership organization whose purpose is to provide an opportunity to enjoy, protect, and respect the natural world in southeastern West Virginia. The Club members volunteer in the park on the falcon restoration project. The Brooks Bird Club is promotes the study and enjoyment of birds and other elements of the natural world. The club undertakes population and breeding bird surveys in the park area and its members volunteer on the falcon restoration project. PIF is a cooperative effort involving partnerships among federal, state, and local government agencies, philanthropic foundations, professional organizations, conservation groups, industry, the academic community, and private individuals. Its mission is to help species at risk, to keep common birds common, and to promote voluntary partnerships for birds, habitats, and people. PIF works with the NPS to enhance neotropical migrants in the park via annual meetings and research.

Table 3.45 Entities that Help the NPS Accomplish its Mission at New River Gorge National River

Entity	Type of Agreement and General Provisions
Cultural Resource Organizations	
■ **Collis P. Huntington Railroad Historical Society (CPH), the New River Train, and the City of Hinton Railroad Days**	Each fall the CPH sponsors the New River Train which travels from the Huntington C&O Depot to the Hinton C&O Depot, including the rail section through New River Gorge. The New River Train operates on Saturday and Sunday for two weekends during the peak fall foliage period. At Hinton, the city hosts the Hinton Railroad Days festival to coincide with the train's schedule. NPS participates in the Railroad Days festival offering interpretive programming. These events help to promote awareness and understanding of the park as a unit of the national park system. CPH has also assisted the NPS with railroading exhibits at the Thurmond Visitor Center.
User Group Organizations	
■ **WV Professional River Outfitters (WVPRO)**	WVPRO is the professional organization that represents the commercial whitewater industry, coordinating marketing and public relations with tourism entities throughout the state and taking the lead in developing and implementing industry improvement solutions. WVPRO also provides members and their employees with training and development opportunities. WVPRO works cooperatively with the NPS to enhance recreation opportunities in the park, to enhance paddler safety, to better interpret the park's resources for paddlers, and to protect the park's resources.
■ **American Whitewater and WV Wildwater Association (WVWA)**	American Whitewater works to conserve and restore America's whitewater resources and to enhance opportunities to enjoy them safely. WVWA is the local paddling club affiliate in West Virginia. WVWA's mission is to help others enjoy, understand, and appreciate the joy of paddling the wild and scenic rivers of West Virginia and the surrounding Appalachian area. At New River Gorge the WVWA sponsors clinics for new boaters throughout the year, schedules trips during the paddling season, and works to keep paddlers aware of conservation and access concerns.
■ **New River Community Partners (NRCP)**	NRCP, the NPS, the US Army Corps of Engineers and various state agencies in Virginia and North Carolina are working through a cooperative agreement to promote the New River Blueway on the New River by the use of a common logo on signs and media.
■ **Access Fund and the New River Alliance of Climbers (NRAC)**	The Access Fund represents climbers nationwide with the goal of keeping climbing areas open and conserving the climbing environment. NRAC – the local Access Fund affiliate – is organized to preserve and promote climber access in the New River Gorge and surrounding areas, with a primary purpose of monitoring and maintaining the safety of fixed anchors. NRAC has assisted the NPS with maintaining anchors on fixed climbing routes, installing ladders, and removing trash. NRAC also assisted the NPS with development of the park's new *Climbing Management Plan* (NPS 2005).
■ **International Mountain Bikers Association (IMBA)**	IMBA is a non-profit educational association whose mission is to create, enhance and preserve trail opportunities for mountain bikers by encouraging low-impact riding, volunteer trail work, cooperation among different types of trail users, and innovative trail management solutions. IMBA and the NPS have a partnership agreement nationwide to bring mountain bikers and park officials together to develop models for future collaboration. IMBA provides technical and volunteer assistance to national park units that are interested in improving their off-road cycling opportunities. At New River Gorge IMBA has recently assisted with development of biking trails in the Fayetteville area.
■ **Theatre West Virginia**	Theatre West Virginia has provided the programming and performances at the Grandview Amphitheatre since 1971. Nightly during the summer season an NPS ranger provides an informal "Ranger on the Rock" talk at the main Grandview overlook prior to the performance. An NPS ranger also introduces the show on stage, making contact with approximately 24,000 visitors each year. Park maintenance staff assists with improvements to the theatre's infrastructure.

Table 3.45 Entities that Help the NPS Accomplish its Mission at New River Gorge National River

Entity	Type of Agreement and General Provisions
Colleges and Universities	
■ **Concord University**	Concord University and the NPS are working cooperatively to assess the feasibility of joint future use of Camp Brookside as a research and educational facility.
Federal, State, and Local Agencies	
■ **WV Whitewater Commission and WV Division of Natural Resources (WV DNR)**	Pursuant to the park's enabling legislation, the state of West Virginia regulates commercial recreation watercraft services in the park through a cooperative agreement with the NPS. The Whitewater Commission establishes use limits for the river which are administered by the WV DNR. The park superintendent is a non-voting member of the Whitewater Commission.
■ **WV Division of Natural Resources (WV DNR)**	WV DOW has management responsibility for the fish and wildlife resources of the state. Currently, hunting is permitted in most areas of the park in accordance with state regulations. WV DNR and the NPS jointly manage fishing access to the New River near Camp Brookside through a cooperative agreement.
■ **WV State Parks and Forests** - **Hawks Nest State Park**	Hawks Nest State Park and the NPS work cooperatively to protect the scenic resources in and around the gorge and make information available to visitors about each park. Many NPS visitors make use of lodging accommodations at Hawks Nest.
■ **WV State Historic Preservation Officer (SHPO)**	The WV SHPO and the NPS work cooperatively to identify, preserve, and protect the cultural resources representative of West Virginia's heritage that are found in the park.
■ **US Army Corps of Engineers and the US Geological Survey (USGS)**	Pursuant to the park's enabling legislation, the NPS and the Corps work cooperatively to adjust flows from Bluestone Lake during periods of low flow to enhance the quality of the recreational experience in the New River below the lake as well as to protect the biological resources of the river. The USGS maintains a gauging station with NPS support on the New River that provides information needed for managing flows and used by park visitors to plan river trips.
■ **Federal Highway Administration (FHWA)**	The FHWA is the entity responsible for repairs to official park roads that are damaged by flooding (e.g., Glade Creek and Cunard Access Roads). FHWA is also the lead agency for construction of the New River Parkway. The NPS and FHWA have entered into a memorandum of understanding defining responsibilities for mitigating impacts to park resources related to parkway development.
■ **WV Division of Highways (WV DOH)**	The WV DOH and the NPS work cooperatively to place signage along public roads directing visitors to the park and to plan improvements to state roads and bridges within the park's boundary. The WV DOH also administers the state byways and backways program and makes grants for road enhancements and protection of resources in designated roadway corridors (such as the Glade Creek Backway).
Local Communities	
■ **Local Governments**	The NPS works cooperatively with the local governments in and adjacent to the gorge, including Fayette, Raleigh, and Summers County and the incorporated areas of Hinton, Beckley, Mount Hope, Oak Hill, Fayetteville, and Ansted. Pursuant to the park's enabling legislation the NPS seeks to assist and consult with appropriate local officials and government employees in establishing policies and programs which will assist in protecting park resources and values.
■ **Town of Fayetteville**	The NPS and the town of Fayetteville work cooperatively through a general agreement to provide access and maintain trails and foot paths on NPS and town properties near the Fayetteville Town Park.

Table 3.45 Entities that Help the NPS Accomplish its Mission at New River Gorge National River

Entity	Type of Agreement and General Provisions
Other Organizations	
■ **Citizens Conservation Corps of West Virginia (WVCCC)**	WV CCC conducts projects and programs that: 1) strengthen and revitalize communities in West Virginia, and 2) that provide self-esteem, educational enhancements, and employment opportunities through meaningful work experiences for both youth and adults. WV CCC manages the youth program in the park that utilizes Public Land Grant Funding to support seasonal workers who assist with a variety of construction and maintenance projects.
■ **Operation Lifesaver**	Operation Lifesaver is an international non-profit education and awareness program dedicated to ending tragic collisions, fatalities, and injuries at highway-rail grade crossings and on railroad rights-of-way. Operation Lifesaver assists the NPS with developing and implementing strategies to improve the safety of railroad crossings in the park, enhancing public awareness about the dangers around rails, and strategies for working with the CSX Corporation.
■ **CSX Transportation Police**	The CSX Corporation and the NPS have a Memorandum of Agreement (MOA) to enforce certain federal regulations on CSX property within New River Gorge National River in a manner consistent with the NPS mission.